

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2024 Office of the Secretary Of Defense **Date:** March 2023

<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> / BA 3: <i>Advanced Technology Development (ATD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>
---	--

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	158.243	24.885	26.802	27.078	-	27.078	27.612	28.210	28.801	29.427	-	-
313: <i>Foreign Comparative Testing</i>	158.243	24.885	26.802	27.078	-	27.078	27.612	28.210	28.801	29.427	-	-

**Note**

New Start (Y/N): No

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

This program supports the Department's initiatives to Defend the Homeland, Deter Aggression, and Build a Resilient Joint Force.

The Foreign Comparative Testing (FCT) Program increases Joint Force readiness and lethality by providing near-term solutions to existing and future Department of Defense (DoD) capability gaps by leveraging the Research & Development (R&D) investments of allied nations and coalition partners. The FCT Program Element (PE) evaluates prototypes derived from allied and partner nation technologies to provide the U.S. Armed Services, U.S. Special Operations Command (USSOCOM), and Defense Agencies capabilities to counter emerging threats. The FCT Program's broad reach across our allies and friendly foreign countries enables development of innovative, cost effective, and interoperable solutions to meet needs communicated by the Joint Chiefs of Staff and the Combatant Commanders. FCT strengthens alliances by facilitating international collaboration and evaluating technologies that increase interoperability while serving as a catalyst for teaming and other business relationships between international and domestic industries.

Partner nations recognize the long-term value of the "two-way street" for Defense procurements for which FCT provides an avenue. Numerous successful projects have resulted in the licensed production of a qualified foreign item in the United States, including the creation of jobs and contributions to local economies. To date, companies from 34 states have benefited from FCT projects. FCT supports DoD best practices by incentivizing the use of prototyping and experimentation in advancing technological solutions to warfighter problems and acts as a hedge against threat developments. FCT enhances affordability by reducing development costs and risk, accelerating acquisition timelines, and increasing competition. Through increasing joint lethality and readiness, strengthening alliances, and delivering affordable performance on accelerated timelines, FCT supports the National Defense Strategy and the Under Secretary of Defense for Research and Engineering (OUSD R&E) critical technology areas. Authorized by Title 10, U.S. Code, Section 2350a (g), the FCT program is managed by the Office of the Under Secretary of Defense for Research and Engineering (OUSD R&E), International Prototypes and Experiments (IP&E) Office and projects are jointly conducted by the Military Services and USSOCOM.

**Measurable Outcomes:**

-FCT projects will demonstrate capability objectives within 12-36 months.

-Over its 43-year history, FCT has a transition rate of 61 percent (411 out of 679) for completed projects. Of the 411 projects that tested successful, 326 or 79 percent resulted in follow-on procurements of over \$12.025 billion.

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2024 Office of the Secretary Of Defense	<b>Date:</b> March 2023
---	-------------------------

<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>
---	--

<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	25.352	26.802	27.554	-	27.554
Current President's Budget	24.885	26.802	27.078	-	27.078
Total Adjustments	-0.467	0.000	-0.476	-	-0.476
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.463	-			
• Program Adjustment	-0.004	-	-0.476	-	-0.476

**Change Summary Explanation**

The FY 2024 decrease is comprised of a re-alignment decrease of \$0.600 million to support the Historically Black Colleges and Universities/Minority Serving Institutions program, which is a priority of the Under Secretary of Defense for Research and Engineering (USD(R&E)), a decrease of \$0.028 million to support departmental priorities, and an increase of \$0.152 million for an economic assumption inflation.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Office of the Secretary Of Defense **Date:** March 2023

<b>Appropriation/Budget Activity</b> 0400 / 3					<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>				<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>			
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
313: <i>Foreign Comparative Testing</i>	158.243	24.885	26.802	27.078	-	27.078	27.612	28.210	28.801	29.427	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

The FCT Program Element funding supports projects that test and evaluate innovative technologies already developed by partner nations and in doing so, directly aligns to the National Defense Strategy through increasing joint lethality in contested environments, strengthening partnerships, and fostering reform through delivery of capability at the speed of relevance. Program portfolio aligns with the critical technology areas where applicable. Individual projects typically average less than \$1.000 million each and complete within 12-36 months. Projects are proposed by the Military Services and USSOCOM and are selected using a merit-based process that identifies the most promising, innovative, and cost-effective solutions to validate warfighter requirements, with an emphasis on transitioning technologies into current or future programs of record. Projects selection is based on potential to yield cost, schedule, or performance improvements over the status quo.

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

	FY 2022	FY 2023	FY 2024
<p><b>Title:</b> Norwegian Advanced Surface to Air Missile System (NASAMS) Operational Assessment (Air Force/Space Force)</p> <p><b>Description:</b> This project conducts an operational assessment of the NASAMS fire distribution center integrated with the Combined Joint Task Force Horn of Africa Integrated Air and Missile Defense architecture. NASAMS provides a more affordable air and missile defense capability option against emerging unmanned aerial vehicles and land attack cruise missile threats. If successful, this technology will be available for rapid transition to regional Combatant Commands as required. Initiated project and test article contract in FY 2022. This project continues in FY 2023 with FY 2022 funds. Awarded test article contract and conducted test planning in 1Q FY 2023. Conduct operational simulations and evaluations in 2Q to 3Q FY 2023. Complete final integration and closeout reports in 4Q FY 2023.</p>	1.980	-	-
<p><b>Title:</b> Semi-Autonomous Devices for Medical Care (Army)</p> <p><b>Description:</b> This project evaluates commercially available interoperable medical devices such as ventilators and intravenous pumps that are remotely controlled. These devices provide improvements in the quality and safety of patient care by enabling immediate adjustment of device settings without requiring a human to physically be present. If successful, this technology will transition to the Army's Military Medical Development Activity for follow-on specific operational testing and requesting Food and Drug Administration clearance prior to procurement and fielding. Completed phase I laboratory testing in FY 2022. This project continues in FY 2023 with FY 2022 funding. Completed phase II non-clinical device interoperability testing in 2Q FY 2023. Complete final test and closeout reports in 3Q FY 2023.</p>	0.674	-	-
<p><b>Title:</b> Skywall Auto Response (Army)</p>	0.565	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p><b>Description:</b> This project evaluates a non-kinetic counter unmanned aerial system for vehicles and fixed site configurations. This technology increases the probability of defeat while reducing collateral damage. If successful, this technology will transition the Army's Program Manager for Soldier Lethality and the Air Force Life Cycle Management Center for follow-on procurement and fielding. This technology is of interest to all Services and other government agencies. Test articles received and initial testing completed in FY 2022. This project continues in FY 2023 with FY 2022 funding. Complete test and demonstration events in 1Q to 3Q FY 2023. Complete final test and closeout reports in 4Q FY 2023.</p>				
<p><b>Title:</b> Advanced Closed Cycle Hull Cleaning (Navy/USMC)</p> <p><b>Description:</b> This project comparatively tests robotic systems that capture and treat marine biofouling collected during underwater hull cleaning operations. This will improve the DoD's global environmental compliance posture and increase operational readiness as existing methods of hull cleaning do not comply with new environmental regulations, particularly on the west coast of the United States due to the creation of biofouling. If successful, the Naval Sea Systems Command's Salvage and Diving office will update hull-cleaning specifications and the technology will transition to hull cleaning service providers as required to meet the new specifications. Comparative testing initiated during FY 2022. This project continues in FY 2023 with FY 2022 funding. Completed comparative testing during 2Q FY 2023. Complete final test and closeout reports during 3Q to 4Q FY 2023.</p>		0.509	-	-
<p><b>Title:</b> Cold-Weather All-Terrain Vehicle (Army)</p> <p><b>Description:</b> This project comparatively tests off-the-shelf cold weather capable tracked vehicles with enhanced off-road mobility. This accelerates the fielding of a replacement for an obsolete system and enables logistics support in austere conditions. If successful, this technology will transition to the Army's Program Executive Office for Combat Support and Combat Service Support for follow-on procurement and fielding through an Other Transaction Agreement. Test articles received and initial testing completed in FY 2022. This project continues in FY 2023 with FY 2022 funding. Complete first article and production testing in 1Q to 3Q FY 2023. Complete final test and closeout reports in 4Q FY 2023.</p>		0.500	-	-
<p><b>Title:</b> Software Defined Acoustic Modem Evaluation (Navy/USMC)</p> <p><b>Description:</b> This project comparatively tests commercial software-defined radios in underwater acoustic environments. This technology enables interoperable, reliable, and secure communication between surface and subsurface platforms and sensors. If successful, this technology will transition to Naval Undersea Warfare Center, Newport Division, for inclusion in follow-on large-scale prototype undersea network demonstration programs and additional evaluation. Phase I testing completed in FY 2022. This project continues in FY 2023 with FY 2022 funding. Phase II in-water testing completed in 1Q FY 2023. Phase III final demonstration conducted in 2Q FY 2023. Final test and closeout reports expected to complete in 3Q to 4Q FY 2023.</p>		0.482	-	-
<p><b>Title:</b> Individual Assault Munition (Army)</p>		0.300	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p><b>Description:</b> This project evaluates a multi-purpose shoulder fired munition with a tandem warhead capable of defeating both armored vehicles and structures. This technology replaces two weapon systems and provides lethality overmatch in urban environments by enabling fire from enclosed spaces. If successful, this technology will transition to the Army's Product Director for Combat Armaments and Protection Systems for follow-on procurement and fielding. Performance testing completed in FY 2022. This project continues in FY 2023 with FY 2022 funding. Environmental testing conducted in 1Q to 2Q FY 2023. Final test and closeout reports completed in 3Q FY 2023.</p>				
<p><b>Title:</b> Lightweight Short Range Guided Missile (USSOCOM)</p> <p><b>Description:</b> This project comparatively tests man-portable, shoulder-fired missile systems that utilize seeker technology for engaging static or moving targets at extended ranges compared to existing unguided weapons systems within the USSOCOM inventory. This provides a more affordable guided munition than the FGM-148 Javelin weapon system. If successful, this technology will transition to USSOCOM's Program Executive Office, Special Operations Forces Warrior for follow-on procurement. Live fire testing completed in 4Q FY 2022. This project continues in FY 2023 with FY 2022 funding. Final test and closeout reports completed in 1Q FY 2023.</p>		0.250	-	-
<p><b>Title:</b> Hybrid Vertical Takeoff and Landing (VTOL)/Fixed Wing Unmanned Aerial System (UAS) (Navy/USMC)</p> <p><b>Description:</b> This project comparatively tests hybrid VTOL/Fixed Wing UAS to enable increased mission endurance/range, deployment from small boats and vehicles, and significant reduction in ground support footprint and manpower. If successful, this technology will transition to the Navy's Battlespace Awareness and Information Operations Program Office for follow-on testing and demonstrations to inform future procurement decisions. Performance testing and demonstrations completed in FY 2022. This project continues in FY 2023 with FY 2022 funding. Final test and closeout reports completed in 1Q FY 2023.</p>		0.024	-	-
<p><b>Title:</b> Low-Cost Vertical Take-Off and Landing Precision Strike System (USSOCOM)</p> <p><b>Description:</b> This project evaluates a small, agile loitering munition that can serve as both an intelligence, surveillance, and reconnaissance asset and a highly lethal munition, improving operational flexibility and effectiveness. This technology reduces the logistics burden by providing a reusable capability not available with existing loitering munitions. If successful, this technology will transition to USSOCOM's Precision Strike Systems Program of Record for follow-on procurement and fielding.</p> <p><b>FY 2023 Plans:</b> Test planning occurred in 1Q FY 2023. Test articles expected to be received in 3Q FY 2023. Inert system testing expected to occur in 4Q FY 2023. This project continues in FY 2024 with FY 2023 funding. This project continues in FY 2024 with FY 2023</p>		1.350	1.000	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Test ing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
funding. Safety evaluation expected to occur in 1Q FY 2024. Lethality testing expected in 2Q FY 2024. Final test and closeout reports anticipated in 4Q FY 2024.  <b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases to zero in FY 2024 as testing concludes and project closed out.				
<b>Title:</b> Autonomous Wide Area Surveillance Sensor on small Unmanned Aerial Systems (sUAS) (Navy/USMC)  <b>Description:</b> This project tests a video detection and ranging sensor on a small Group 1 UAS optimized for Maritime Wide-Area Surveillance in support of Naval and Marine Forces in the Littoral Battlespace. This technology autonomously detects small objects on the sea surface over very wide areas, during day and night, and in conditions up to Sea State 6. If successful, this technology will transition to the Navy and Marine Corps Small Tactical UAS Program Office (PMA-263) for follow-on procurement and fielding.  <b>FY 2023 Plans:</b> Test article contract awarded in 1Q FY 2023. Test articles to be received in 3Q FY 2023. Complete testing in 4Q FY 2023. Complete final test and closeout reports completed in 4Q FY 2023.  <b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases to zero in FY 2024 as testing concludes and project closed out.		1.175	0.175	-
<b>Title:</b> Civil Affairs Solution - Army (CAS-A) Analytics with Synthetic Aperture Radar (SAR) Change Detection (USSOCOM)  <b>Description:</b> This project tests intelligence software that fuses imagery from unmanned aerial systems and satellites with other sensor data and uses artificial intelligence and machine learning (AI/ML) to rapidly provide actionable analytics. This technology supports Department of Defense Civil Affairs operations by analyzing population migration caused by conflict or natural disasters to enable dynamic planning for large-scale operations. This project enhances the DoD capabilities in the AI/ML focus area. If successful, this technology will be available for transition to the Army's Distributed Common Ground System Program of Record.  <b>FY 2023 Plans:</b> Test article contract awarded in 1Q FY 2023. Operational testing occurred in 2Q to 3Q FY 2023. Complete final test and closeout reports in 4Q FY 2023.  <b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases to zero in FY 2024 as testing concludes and project closed out.		0.630	1.310	-
<b>Title:</b> Precision Strike Indoor/Outdoor small Unmanned Aerial System (sUAS) (USSOCOM)		0.600	0.600	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Test ing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p><b>Description:</b> This project evaluates an sUAS for use during operations conducted in complex urban terrain, in both indoor and outdoor environments. This technology provides an affordable day/night reconnaissance, surveillance, and target acquisition capability with an optional lethal payload. If successful, this technology will transition to USSOCOM's Ground Organic Precision Strike Systems Program of Record for follow-on procurement and fielding.</p> <p><b>FY 2023 Plans:</b> Phase I testing completed in 1Q FY 2023. Phase II testing completed in 2Q FY 2023. Complete final test and closeout reports in 4Q FY 2023.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases to zero in FY 2024 as testing concludes and project closed out.</p>			
<p><b>Title:</b> Comparative Test of 1000 volt Direct Current (DC) Power Systems for Directed Energy (Navy/USMC)</p> <p><b>Description:</b> This project comparatively tests a Norwegian off-the-shelf large-scale energy storage system designed for maritime use against a comparable domestic product. This supports development of next generation directed-energy weapon systems for naval platforms. If successful, this technology will transition to the Navy's Guided Missile Destroyer program office to inform requirements for next generation platform development.</p> <p><b>FY 2023 Plans:</b> Completed comparative testing in 1Q FY 2023. Complete final test and closeout reports in 2Q FY 2023.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases to zero in FY 2024 as testing concludes and project closed out.</p>	0.593	0.162	-
<p><b>Title:</b> Future Aviation Ground Power Unit (Army)</p> <p><b>Description:</b> This project evaluates a modern, off-the-shelf aviation support system for military rotary wing aircraft. This technology improves aviation maintenance efficiency and reduces aircraft downtime. If successful, this technology will transition to the Army's Product Director for Aviation Ground Support Equipment for follow-on procurement and fielding.</p> <p><b>FY 2023 Plans:</b> Performance verification testing conducted in 1Q to 2Q FY 2023. Complete final test and closeout reports in 3Q FY 2023.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases to zero in FY 2024 as testing concludes and project closed out.</p>	0.548	0.040	-
<p><b>Title:</b> Sappheiros Three-Dimensional Unattended Ground Sensors (Army)</p>	0.500	0.600	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p><b>Description:</b> This project evaluates a multi-modal sensor system that simultaneously provides terrestrial and subterranean perimeter surveillance. This technology offers increased operational capabilities over existing systems and addresses the associated gaps related to perimeter surveillance. If successful, this technology will transition to the Army's Advanced Unit Perimeter Security System and Marine Corps Tactical Remote Sensor Systems Programs of Record for follow-on procurement and fielding.</p> <p><b>FY 2023 Plans:</b> Completed initial performance testing and demonstrations in 1Q FY 2023. Completed developmental testing in 2Q FY 2023. Complete operational testing in 3Q FY 2023. Conduct final demonstration in 4Q FY 2024. Complete final test and closeout reports in 4Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases to zero in FY 2024 as testing concludes and project closed out.</p>			
<p><b>Title:</b> Target Detection Modernization for Mines (Navy/USMC)</p> <p><b>Description:</b> This project evaluates a modern target detection device for application to existing Naval Mines. The device utilizes a multi-sensor suite (inertial, acoustic, photonic, and underwater electric) as well as sensor fusion to better detect, classify, and identify naval target vessels. This effort provides an affordable option to deliver improved performance of naval mines and replaces 20-year-old technology. If successful, the Navy's Mine Warfare Program Office (PMS 495) will transition the technology into the Quickstrike family of shallow-water, air delivered mines through an Engineering Change Proposal (ECP) in collaboration with the Air Force.</p> <p><b>FY 2023 Plans:</b> Test planning occurred in 2Q FY 2023. Test articles to be received in 3Q FY 2023. Initiate testing in 4Q FY 2023. This project continues in FY 2024 with FY 2023 funding. Testing expected to complete in 2Q FY 2024. Final test and closeout reports anticipated in 4Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases to zero in FY 2024 as testing concludes and project closed out.</p>	0.500	0.500	-
<p><b>Title:</b> Active Protection System, Hard-Kill (Navy/USMC)</p> <p><b>Description:</b> This project evaluates a vehicle mounted system that autonomously detects, tracks, and engages threats with both Hard and Soft Kill countermeasures. This technology increases combat capabilities of light armored vehicles against rocket propelled grenades and anti-tank missiles. If successful, this technology will transition to Marine Corps Program Executive Office</p>	0.480	0.985	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Test ing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
for Land Systems for follow-on procurement and fielding on the Amphibious Combat Vehicle through an Engineering Change Proposal.				
<p><b>FY 2023 Plans:</b> Test planning and threat procurement occurred in 1Q FY 2023. Test articles received in 2Q FY 2023. Live fire testing completed in 3Q FY 2023. Final test and closeout reports completed in 4Q FY 2023.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases to zero in FY 2024 as testing concludes and project closed out.</p>				
<p><b>Title:</b> Airborne Threat Discrimination Sensors For Land and Ship Platforms (Navy/USMC)</p> <p><b>Description:</b> This project comparatively tests wide-field-of-view electro-optic and infrared sensors for land and ship platforms as a complement to radar. This enables passive detection and tracking of challenging airborne threats. If successful, This technology will transition into relevant programs of record within the Navy's Program Executive Office for Integrated Warfare Systems and the Army's Program Executive Office for Ground Combat Systems.</p>		0.200	0.050	-
<p><b>FY 2023 Plans:</b> Conducted laboratory testing and field data collection events during 1Q to 3Q FY 2023. Final test and closeout reports completed in 4Q FY 2023.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases to zero in FY 2024 as testing concludes and project closed out.</p>				
<p><b>Title:</b> Bridge Connector (Army)</p> <p><b>Description:</b> This project evaluates an adapter that allows a floating bridge used by the U.S. Army to be used by German and British amphibious bridging systems. This technology enables enhanced joint multinational bridge operations in the European theatre to maximize limited resources. If successful, this technology will be transferred to U.S. Multi-Role Bridging Companies in Europe for immediate operational use as needed and will be available for additional follow-on procurements to support future operational needs.</p>		0.300	0.400	0.300
<p><b>FY 2023 Plans:</b> Test article contract awarded in 1Q FY 2023. Test articles received and testing initiated in 2Q FY 2023.</p> <p><b>FY 2024 Plans:</b> Testing expected to complete in 2Q FY 2024. Final test and closeout reports anticipated in 4Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b></p>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
Funding decreases in FY 2024 as major test events occur in FY 2023.				
<p><b>Title:</b> 2.75" Guided Rocket for Multi-Domain Fast In-shore Attack Craft (FIAC) Engagement (Navy/USMC)</p> <p><b>Description:</b> This project evaluates the capabilities of a "fire and forget" 2.75 inch rocket with an advanced Imaging Infrared seeker on an Unmanned Surface Vehicle (USV). This technology provides an effective asymmetric capability against FIAC swarms. If successful, this technology will transition to the Navy's Littoral Combat Ship Mission Modules Program Office for fielding on USVs.</p> <p><b>FY 2023 Plans:</b> Test article contract awarded 1Q FY 2023. Unmanned Surface Vehicle integration planning occurred in 2Q to 4Q FY 2023.</p> <p><b>FY 2024 Plans:</b> Test article delivery expected to occur in 2Q FY 2024. Live fire testing to occur in 3Q FY 2024. Final test and closeout reports anticipated in 4Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases in FY 2024 as test article procurements and major test events are completed.</p>		0.025	0.795	0.500
<p><b>Title:</b> Anti-Submarine Warfare Sensor (ASW) for Unmanned Surface Vehicles (USVs) (Navy/USMC)</p> <p><b>Description:</b> This project tests compact sonar sensors from Canada and Norway for potential application on U.S. Navy Unmanned Surface Vehicles (USVs). This project provides new capabilities for USVs to conduct ASW operations which are currently conducted by manned platforms. This project addresses the Autonomous Systems Critical Technology Area. If successful, this technology transitions to the Navy's Unmanned Maritime Systems Program Office for follow on acquisition and fielding. Successfully completed demonstration of towed sensor at NATO Robotic Experimentation and Prototyping using Maritime Uncrewed Systems (REPMUS) annual military exercise in Portugal during 4Q FY 2022. This project continues in FY 2023 with FY 2022 funding. Hull mounted sensor test article contract awarded in 1Q FY 2023. Test planning to occur in 2Q to 3Q FY 2023. Test article expected to be received in 4Q FY 2023.</p> <p><b>FY 2024 Plans:</b> Hull mounted sensor test article integration planned for 1Q FY 2024. Conduct at-sea testing and demonstration at Exercise Solid Curtain during 2Q FY 2024. Complete final test and closeout reports during 3Q to 4Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding increases in FY 2024 to support hull mounted sensor test and demonstration events.</p>		0.650	-	0.150
<p><b>Title:</b> Autonomous Anti-Submarine Warfare (ASW) Training Target (Navy/USMC)</p>		-	0.600	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Test ing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p><b>Description:</b> This project evaluates an off-the-shelf autonomous mobile unmanned underwater vehicle that replicates the passive and active acoustic signatures of submarines. This technology provides enhanced ASW training effectiveness over current targets in U.S. Navy inventory and enables torpedo testing capability. If successful, this technology will transition to the Navy's Undersea Weapons Program Office for follow-on procurement and fielding.</p> <p><b>FY 2023 Plans:</b> Initiated test planning in 1Q FY 2023. Test article contract awarded in 3Q FY 2023. This project continues in FY 2024 with FY 2023 funding. Test article delivery expected in 2Q FY 2024. Testing anticipated for 3Q FY 2024. Final test and closeout reports expected in 4Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases to zero in FY 2024 as testing concludes and project closed out.</p>			
<p><b>Title:</b> M213 Fuze / Insensitive Munitions (IM) Hand Grenade (Army)</p> <p><b>Description:</b> This project comparatively tests off-the-shelf foreign fuzes for the M67 fragmentation hand grenade that exhibit reduced sensitivity to IM stimuli to increase warfighter safety. The legacy M67 was originally developed in the 1960s and does not meet today's IM safety requirements. If successful, this technology will transition to the Army's Program Executive Office for Ammunition for follow-on procurement and fielding.</p> <p><b>FY 2023 Plans:</b> Lethality testing completed in 1Q FY 2023. Lethality analysis completed in 2Q FY 2023. Engineering tests completed in 3Q FY 2023. This project continues in FY 2024 with FY 2023 funding. Production fuze qualification testing expected to occur in 2Q to 3Q FY 2024. Final test and closeout reports expected in 4Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases to zero in FY 2024 as testing concludes and project closed out.</p>	-	0.400	-
<p><b>Title:</b> Lightweight Expeditionary Airfield Surfacing System (Navy/USMC)</p> <p><b>Description:</b> This project will evaluate a lightweight aircraft landing mat to replace legacy matting. This technology reduces the logistical footprint and increases installation efficiency for rapid deployment in austere locations. If successful, this technology will transition to the Navy and Marine Corps' Expeditionary Airfields program office for follow-on procurement and fielding.</p> <p><b>FY 2023 Plans:</b></p>	-	0.800	0.800

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>Initiated test planning in 1Q FY 2023. Test article contract awarded in 3Q FY 2023. Test articles received in and phase I ground vehicle traffic testing initiated in 4Q FY 2023.</p> <p><b>FY 2024 Plans:</b> Phase I testing expected to complete in 1Q FY 2024. Phase II aircraft trafficking testing expected to complete in 2Q FY 2024. Final test and closeout reports expected in 4Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding remains constant in FY 2024 to complete phase II testing.</p>				
<p><b>Title:</b> Enhanced Integrated Fire Control System for M3E1 (Army)</p> <p><b>Description:</b> This project comparatively tests advanced fire control systems for the 84 millimeter shoulder fired reloadable recoilless M3E1 Multi-purpose Anti-armor Anti-personnel Weapon System. This technology provides enhanced targeting in both day and night operations at extended ranges. If successful, this technology will transition to the Army's Program Manager for Soldier Lethality for follow-on procurement and fielding.</p> <p><b>FY 2023 Plans:</b> Initiate test planning in 1Q FY 2023. Award test article contract in 2Q FY 2023. Receive test articles in 3Q FY 2023. Initiate phase I testing in 4Q FY 2023.</p> <p><b>FY 2024 Plans:</b> Receive phase II test articles in 1Q FY 2024. Conduct phase II testing in 2Q to 3Q FY 2024. Final test and closeout reports expected in 4Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding increases in FY 2024 to support major test events and project closeout.</p>		-	0.370	1.550
<p><b>Title:</b> High Power Electrical Isolation (Navy/USMC)</p> <p><b>Description:</b> This project tests high power electrical disconnect switches to isolate next generation carrier based aircraft launch and recovery equipment for maintenance and repairs. This technology increases readiness by enabling concurrent operations and maintenance on complex mission critical systems. If successful, this technology will transition the Navy's Aircraft Launch and Recovery Equipment program office for follow-on procurement and fielding through an Engineering Change Proposal to the Electromagnetic Aircraft Launch System and Advanced Arresting Gear programs of record.</p> <p><b>FY 2023 Plans:</b></p>		-	0.402	0.656

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Test ing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>Initiate test planning in 1Q FY 2023. Test article contract award anticipated for 2Q FY 2023. Test articles expected to be received in 3Q FY 2023. Initiate Phase I and II testing in 4Q FY 2023.</p> <p><b>FY 2024 Plans:</b> Phase III testing expected to occur in 1Q FY 2024. Phase IV and V testing expected to occur during 2Q to 3Q FY 2024. Final test and closeout reports expected in 4Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding increases in FY 2024 to support major test events and project closeout.</p>				
<p><b>Title:</b> 6T Lithium-Ion Batteries (Army)</p> <p><b>Description:</b> This project comparatively tests foreign lithium-ion 6T batteries with increased energy capacity and longer cycle life against similar domestic products. This technology improves the mission capabilities and availability of military ground vehicles. If successful, this technology will be available as an option for procurement through the Defense Logistics Agency.</p> <p><b>FY 2023 Plans:</b> Initiate test planning in 1Q FY 2023. Test article contract award anticipated for 2Q FY 2023. Test articles expected to be received in 3Q FY 2023. Initiate Phase I and II testing in 4Q FY 2023.</p> <p><b>FY 2024 Plans:</b> Phase III testing expected to occur in 1Q FY 2024. Phase IV and V testing expected to occur during 2Q to 3Q FY 2024. Final test and closeout reports expected in 4Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding remains constant in FY 2024 to support major test events and project closeout.</p>		-	0.500	0.500
<p><b>Title:</b> Advanced Compact Unmanned Aerial Vehicle (UAV)-based Radar for All-visibility Targeting (Army)</p> <p><b>Description:</b> This project evaluates a sensor system that fuses a compact digital beam forming radar with electro-optic and infrared sensors on Group 2 UAVs. This technology provides a persistent all-weather airborne reconnaissance capability. If successful, this technology will transition to the Army's Program Manager for Terrestrial Sensors for follow-on procurement and fielding. This technology is also of interest to various sensor programs across the DoD.</p> <p><b>FY 2023 Plans:</b> Initiate test planning in 1Q FY 2023. Award test article contract in 2Q FY 2023. Receive test articles in 4Q FY 2023.</p> <p><b>FY 2024 Plans:</b></p>		-	0.622	0.435

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>Conduct initial performance testing and demonstrations in 1Q FY 2024. Developmental testing expected to occur in 2Q FY 2024. Operational testing and final demonstrations expected to occur in 3Q FY 2024. Final test and closeout reports anticipated in 4Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases in FY 2024 as testing concludes and project is closed out.</p>				
<p><b>Title:</b> Dual-mode Precision Guided 120 millimeter Mortar (USSOCOM)</p> <p><b>Description:</b> This project evaluates a precision mortar round with both laser and Global Positioning System (GPS) guidance capabilities. This technology provides a tactical indirect fires system to defeat material and armored vehicles with pinpoint accuracy in contested environments. If successful, this technology will transition to USSOCOM's Program Manager for Special Operations Forces Lethality as well as service guided mortar programs for follow-on procurement and fielding.</p> <p><b>FY 2023 Plans:</b> Test article contract awarded in 1Q FY 2023. Warhead arena testing conducted in 3Q FY 2023. Environmental testing completed in 4Q FY 2023. This project continues in FY 2024 with FY 2024 funds.</p> <p><b>FY 2024 Plans:</b> Limited User Assessment anticipated for 1Q FY 2024. Final test and closeout reports expected in 2Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases in FY 2024 as test article procurements and major test events are completed in FY 2023.</p>		-	0.750	0.500
<p><b>Title:</b> Alternate At-Sea Refueling (Navy/USMC)</p> <p><b>Description:</b> This project evaluates a dual-fuel astern hose reel system installed on a commercial Offshore Support Vessel for underway replenishment. This technology provides an expanded logistics capability in contested maritime environments. If successful, the test article will be used for training and the technology will be available for follow-on procurement and fielding by Combatant Commanders to support operational needs.</p> <p><b>FY 2023 Plans:</b> Test planning initiated in 2Q FY 2023. Test article contract awarded in 3Q FY 2023. Test article received in 4Q FY 2023. Phase I testing expected to occur in 4Q FY 2023. This project continues in FY 2024 with FY 2023 funding. Phase II testing expected to occur in 1Q FY 2024. Phase III testing expected to occur in 2Q FY 2024. Final test and closeout reports expected in 4Q FY 2024.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b></p>		-	1.350	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
Funding decreases to zero in FY 2024 as majority of funding is used for test article procurement. Testing costs in FY 2024 to be borne by service sponsor.			
<p><b>Title:</b> Low-Cost Innovative Projects (Projects Less Than One Million Dollars Each):</p> <p><b>Description:</b> The Office of the Under Secretary of Defense for Research and Engineering (OUSD R&amp;E), International Prototypes and Experiments (IP&amp;E) Office, selects multiple low-cost projects in the areas of Force Application, Force Protection, Force Support, Logistics, Artificial Intelligence and Machine Learning, Robotics and Autonomous Systems, Interoperability, and Countering Unmanned Systems. These projects were selected to deliver prototypes for evaluation, assessment, and Service adoption within 12 to 36 months.</p> <p>Soldier Borne Sensor System (Army) This project evaluates a next generation micro unmanned aerial systems with improved sensor capabilities and flight performance characteristics to enable enhanced situational awareness at the squad level. If successful, this technology will transition to the Army's Program Executive Office Soldier for follow-on procurement and fielding through the Soldier Borne Sensor Program of Record.</p> <p>Top Attack Armor (Army) This project comparatively tests improved vehicle protection technology for defeating overhead threats to Armored Fighting Vehicles. This provides protection against modern anti-tank threats while minimizing negative mobility impact. If successful, this technology will transition to the Army's Product Manager for Vehicle Protection Systems for integration into Ground Combat Systems and Next Generation Combat Vehicle Cross Functional Team programs for fielding through an engineering change proposal.</p> <p>Vehicle Mounted Camouflage System (Army) This project comparatively tests vehicle coverings that reduce detection across multiple spectrum bands including infrared, microwave, and radar to increase survivability in contested environments. If successful, this technology will transition to the Army's Product Manager for Vehicle Protection Systems for integration into Ground Combat Systems and Next Generation Combat Vehicle Cross Functional Team programs for fielding through an engineering change proposal.</p> <p>Water Free Chemical Decontaminant System (Army) This project evaluates a portable decontamination system that does not require water. This technology enables the thorough decontamination of sensitive equipment in forward environments, a capability that does not exist within the DoD today. If successful, this technology will transition to the Joint Program Manager for Chemical, Biological, Radiological, Nuclear Protection for follow-on procurement and fielding.</p> <p>Bacteriophage (Army) This project evaluates commercial phage mixtures for incorporation into a feminine hygiene wipe to selectively kill microbes that cause urinary tract infections (UTIs). Use of phage technology is also potentially applicable to</p>	11.414	13.051	9.485

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>numerous other medical issues, and is an approach for combating multidrug resistant microbes. If successful, this technology will transition to a follow-on human study field trial prior to a fielding decision.</p> <p>Nanostructured Graphene Composites for Microwave Attenuation (Army) This project evaluates graphene-based composites for lightweight, low-cost, printable coatings to electromagnetically harden Joint lethality assets against detection and interdiction by enemy Integrated Air Defense Systems. If successful, this technology will transition to the Army's Long Range Precision Fires Cross Functional Team for integration with XM1155 Extended Range Artillery and other related munitions programs.</p> <p>Long Run-Time Thermal Batteries for Long Range Munitions (Army) This project comparatively tests novel electrolyte materials with low-melting temperature to increase thermal battery run time. Longer battery run time is required to support precision guidance capabilities for new rockets and missiles with longer range than legacy munitions. If successful, this technology will be transitioned to domestic thermal reserve battery manufacturers for incorporation into munitions procured by the Joint Program Executive Office for Armaments and Ammunition.</p> <p>Spectrometric Gamma Camera (Army) This project evaluates a portable gamma camera that enables localization, identification, and quantification of the threat coming from a radioactive source at a distance to increase detection performance and operator safety. If successful, this technology will transition to the Mounted Enhanced Radiac Long-Range Imaging Networkable vehicle mounted system by the Joint Program Executive Office for Chemical Biological Radiological Nuclear Defense.</p> <p>Unmanned Military Vehicle Mobility in Arctic Environments (Army) This project evaluates the mobility of a foreign Unmanned Ground Vehicle (UGV) for use on common Arctic surfaces such as snow, packed snow, and ice. This vehicle addresses Arctic mobility needs as described in the U.S. Army's 2021 Arctic Strategy. If successful, this technology will transition to the Army's Robotic Combat Vehicle Program of Record for follow-on procurement and fielding.</p> <p>Three-Dimensional Printed Metal Parts (Army) This project comparatively tests foreign and domestic materials for printing three-dimensional metal parts using Fused Filament Fabrication methods as an alternative to traditional manufacturing and laser based printing methods that are not suitable for use in forward deployed locations. This enables rapid manufacture of metal parts at the tactical point of need and significantly reduces the logistical burden. If successful, best performing materials will transition to various DoD programs for follow-on parts qualification testing and fielding to include the Army's Infantry Battalion Mortar System, the Air Force's M137A1 cannon for the AC-130 gunship, and the Marine Corps' Expeditionary Fabrication laboratory Program of Record.</p> <p>Artificial Intelligence for Off-Road Autonomy (Army) This project evaluates artificial intelligence capabilities through a series of operational challenges, utilizing vision and proprioceptive sensing, machine learning, and intelligence navigation to increase</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>survivability and readiness of current systems. This technology enables navigation in complex military scenarios, providing increased tactical advantage through terrain sensing and increased mobility. If successful, this technology will transition to the Army's Next Generation Combat Vehicle Cross Functional Team for integration into the Optionally Manned Fighting Vehicle and Robotic Combat Vehicle programs.</p> <p>Warfighter Water Purification (Army) This project evaluates a man-portable water purification unit that relies on low-temperature plasma to eliminate all microbiological threats from indigenous water to provide potable drinking water at a rate of 5 thousand liters per day. There are currently no fielded devices at this small scale that are able to destroy all microbiological threats in water. If successful, this technology will transition to the Army's Product Manager for Soldier Clothing and Individual Equipment for follow-on procurement and fielding through the Individual Water Treatment Device Program of Record.</p> <p>Space Qualification Testing of Event Based Sensors (Air Force/Space Force) This project comparatively tests neuromorphic imaging sensors and algorithms for potential application to space-based surveillance platforms. This novel sensor technology provides benefits over legacy sensors for size, weight, and power constrained platforms such as small satellites. Results will inform various DoD Missile Warning and Intelligence, Surveillance, and Reconnaissance programs. Follow-on application specific technology demonstrations are being explored prior to a fielding decision.</p> <p>Comparative Real Time Air Quality Sensing of Pilot Breathing Lines in High-Performance Aircraft (Air Force/Space Force) This project evaluates an active in-line pilot breathing air monitoring capability in high performance military aircraft. This technology accelerates the delivery of technology that addresses an urgent operational need for the Air Force. If successful, this technology will transition to platform programs of record through the Air Force Life Cycle Management Center Human Systems Office.</p> <p>Event Based Sensing for Moving Target Indication (Air Force/Space Force) This project comparatively tests commercial event-based cameras for intelligence, surveillance, and reconnaissance applications to enable new approaches for affordable, long dwell early warning and moving target detection. This innovative technology could provide an affordable, rapid response surveillance capability. If successful, results will inform various DoD Intelligence, Surveillance, and Reconnaissance programs. Follow-on application specific technology demonstrations will be explored prior to a fielding decision.</p> <p>Air Launched small Unmanned Aerial System (sUAS) for Kinetic Engagement (Air Force/Space Force) This project evaluates the performance of new low-cost, air launched sUAS for multiple, simultaneous kinetic engagements. The air launched sUAS will be integrated into a Common Launch Tube (CLT) – found on numerous AFSOC and USSOCOM platforms – and equipped with Electro-Optic (EO) and kinetic payloads for target acquisition and engagement. This technology provides an affordable precision standoff strike capability with minimal risk to large conventional aircraft or ground forces. If successful, this technology</p>			

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Office of the Secretary Of Defense **Date:** March 2023

<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>
--	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
---	----------------	----------------	----------------

<p>will transition to Air Force Special Operations Command MQ-9 Reaper Medium Altitude Long Endurance-Tactical Unmanned Aerial Vehicle Program of Record through the Air Force Life Cycle Management Center.</p> <p>Low Cost Supersonic Turbojet (Air Force/Space Force) This project tests an affordable commercially available turbojet engine for supersonic performance at high altitudes. This technology is not currently available from domestic manufacturers and enables swarms of very inexpensive unmanned aerial platforms that can operate at supersonic speeds. If successful, this technology will transition to on-going air launched unmanned aerial vehicle development programs.</p> <p>Precision Vertical Takeoff and Landing Unmanned Aerial System (VTUAS) Recovery (Navy/USMC) This project evaluates a pilot-free, autonomous recovery of Vertical Take-Off and Landing Unmanned Aerial Systems (VTUAS). This technology provides autonomous deployment, operation and recovery of VTUAS while reducing warfighter threat exposure and increasing survivability. If successful, this technology will transition to follow-on demonstration events prior to follow-on procurement and fielding recommendations.</p> <p>Extended Reality (XR) Helmet Mounted Display (HMD) (Navy/USMC) This project comparatively tests commercially available XR HMDs for T-45 operational flight training simulators. This technology provides advantages over virtual reality headsets by allowing users to see and interact with mock cockpits in the real world while simultaneously conducting flight training in a virtual environment. If successful, this technology will transition to Undergraduate Flight Training Systems and Naval Aviation Training Systems and Ranges Program Offices for follow-on procurement and fielding.</p> <p>Organic Precision Fires – Infantry, Light (Navy/USMC) This project comparatively tests Group 1 loitering munitions to provide an organic asset with precise kinetic effects within a Marine Infantry Company. If successful, this technology will transition to the Marine Corps Infantry Battalion Experimentation office for follow-on user evaluations through the Marine Corps Rapid Capabilities Office prior to follow-on procurement and fielding.</p> <p>Portable High Power Directed Energy Systems for Aviation Support (Navy/USMC) This project evaluates a portable high power laser system capable of removing aircraft corrosion and coatings in operational environments. This technology reduces the health risk to maintenance personnel and increases maintenance efficiency. If successful, this technology will transition to the Navy's Common Aviation Support Equipment Program Office for follow-on procurement and fielding.</p> <p>Beyond Lithium-ion Battery for Expeditionary Warfare Support (Navy/USMC) This project evaluates next generation Lithium-Sulfur battery cells for various military applications including ground vehicles. Lithium-Sulfur batteries provide up to double the energy storage as existing Lithium-ion batteries while also improving safety. If successful, this technology will transition to battery</p>			
---	--	--	--

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Test ing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>manufacturers as DoD customers such as the Army's Ground Vehicle Systems Center, publish new battery specifications in future solicitations.</p> <p>Micro-Remotely Operated Vehicle (ROV) Rapid Response Underwater Incidents and Threats (Navy/USMC) This project comparatively tests low cost, man portable, micro-ROVs as a rapid response platform for inspection and preparation for neutralization of threat objects in the undersea environment. This technology provides an expeditionary capability to rapidly respond to asymmetric threats. If successful, this technology will transition to the Navy's Maritime Expeditionary Standoff Response (MESR) Program through an Engineering Change Proposal.</p> <p>Minimizing Electromagnetic Emissions Switched Beam Antenna (Navy/USMC) This project evaluates a novel antenna design that combines both omnidirectional and electronically steerable directional beamforms in a single system. This provides increased range and throughput for line of sight communications while decreasing risk of detection. If successful, this technology will transition to the Navy's Amphibious Tactical Communication System as well as other applicable service communications programs of record for follow-on procurement and fielding.</p> <p>Fast Rope Insertion/Extraction System (USSOCOM) This project comparatively tests different fast rope designs used by foreign militaries to address domestic production supply chain issues. Fast rope provides a critical capability enabling rapid deployment of personnel from helicopters where aircraft cannot touch down. If successful, new fast ropes will be purchased directly from manufacturers by the Army's Integrated Logistics Support Center.</p> <p>Green Pulsed Lasers for Optical Communications (Navy/USMC) This project comparatively tests compact, high-energy, air-cooled pulsed green lasers to increase the performance of air-to-underwater optical communications. This technology enables secure communications from aircraft to underwater vessels at operationally relevant depths with data rates 100 times higher than existing radio frequency communications. If successful, this technology will transition to the Navy's Undersea Communications and Integration Program Office for insertion into future optical communications programs of record.</p> <p>Limit of Detection of Rapid Response Fentanyl Strips (Army) This project seeks to determine the precise limit of detection of commercial off the shelf fentanyl test strips. This data is necessary to inform end user requirements prior to field user evaluations and wider military adoption. This technology provides a capability for trace detection of fentanyl in the field to counter emerging threats to military forces. If successful, this technology will transition to the Army's Dismounted Reconnaissance Sets, Kits, and Outfits modernization program for follow-on procurement and fielding. The technology will also be available for purchase by individual units for immediate use as needed.</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>

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

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>Vehicle Filtration Systems (Army) This project comparatively tests modern NATO approved air filtration systems with unique design attributes against inefficient legacy domestic filters. This technology provides enhanced protection from damaging particles associated with chemical, biological, radiological, and nuclear (CBRN) weapons for military vehicles. If successful, this technology will transition to the Army's Optionally Manned Fighting Vehicle Program of Record for follow-on procurement and fielding. Additionally, this technology has applicability to several existing and future planned DoD vehicle programs.</p> <p>Foreign Object Damage Barrier (Navy/USMC) This project evaluates an innovative barrier system to prevent Foreign Object Debris from (FOD) entering paved runways and airfields. This technology reduces FOD incidents by up to 80% which reduces the likelihood of damage to aircraft engines and increases readiness. If successful, this technology will transition to the Navy and Marine Corps Common Aviation Support Equipment program office for follow-on procurement and fielding at tactical land based airfields.</p> <p>Naval Enhanced Global Positioning System (GPS) Antenna System (Navy/USMC) This project comparatively tests foreign GPS Anti-Jam antennas against existing domestic systems. Foreign technology provides new capabilities such as GPS interference signal direction finding and reduces procurement costs by over eighty percent. If successful, this technology will transition to the Global Positioning System (GPS) Based Positioning Navigation and Timing Service Program of Record for follow-on procurement and fielding on various DoD vehicle platforms.</p> <p>Intelligent Unmanned Ground Vehicle (UGV) for Contested Environments (Navy/USMC) This project will demonstrate the expeditionary utility of an advanced logistics UGV that leverages Artificial Intelligence and Machine Learning to integrate and fuse sensor inputs. This technology provides fully autonomous navigation capabilities during operations in contested environments. If successful, the results of this effort will inform future UGV acquisition requirements including the Marine Corps' Expeditionary Modular Autonomous Vehicle and Army's Robotic Combat Vehicle-Light development programs.</p> <p>High Durability Armor Steel (Navy/USMC) This project comparatively tests the environmental toughness of foreign high hard steels used for ballistic protection in armored vehicle applications. This effort addresses domestic supply chain deficiencies and significantly reduces sustainment costs by providing better quality, more durable, and longer lasting materials. If successful, the Army Research Laboratory will modify existing armor steel specifications and this technology will be adopted by vehicle manufacturers.</p> <p>Ration Heater (Army) This project comparatively tests foreign exothermic ration heater performance, shelf life and safety characteristics. This technology provides a heat source without generation of hydrogen by-product that is potentially flammable or explosive if used in confined spaces. If successful, this technology will transition to the Army's Combat Feeding Directorate for follow-on procurement and fielding through the Meal, Ready-to-Eat Improvement program.</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>Joint Light Tactical Vehicle (JLTV) Force Protection (Army) This project evaluates a novel, medium-hardness steel alloy underbody armor add-on kit for the JLTV. This technology provides a relatively lightweight force protection capability to counter anti-vehicle mines and improvised explosive threats. If successful, this technology will transition to the JLTV Joint Program Office for follow-on procurement and fielding.</p> <p><b>FY 2023 Plans:</b> Description: The Office of the Under Secretary of Defense for Research and Engineering (OUSD R&amp;E), International Prototypes and Experiments (IP&amp;E) Office, selects multiple low-cost projects in the areas of Force Application, Force Protection, Force Support, Logistics, Artificial Intelligence and Machine Learning, Robotics and Autonomous Systems, Interoperability, and Countering Unmanned Systems. These projects were selected to deliver prototypes for evaluation, assessment, and Service adoption within 12 to 36 months.</p> <p>Soldier Borne Sensor System (Army) Technical characterization occurred in 1Q FY 2023. Limited operational evaluation conducted in 2-3Q FY 2023.</p> <p>Top Attack Armor (Army) Completed final test and closeout reports in 1Q FY 2023.</p> <p>Vehicle Mounted Camouflage System (Army) Completed field testing in 1-2Q FY 2023. Completed final test and closeout reports in 3Q FY 2023.</p> <p>Water Free Chemical Decontaminant System (Army) Completed test infrastructure development in 1Q FY 2023. Completed laboratory testing in 2Q FY 2023. Completed operational assessments in 3Q FY 2023. Completed final test and closeout reports in 4Q FY 2023.</p> <p>Bacteriophage (Army) Completed prototype phage wipe integration and test events during 1-3Q FY 2023. Completed final test and closeout reports in 4Q FY 2023.</p> <p>Nanostructured Graphene Composites for Microwave Attenuation (Army) Conducted electromagnetic characterization testing during 1-2Q FY 2023. Completed mechanical characterization testing in 3Q FY 2023. Completed final test and closeout reports in 4Q FY 2024.</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense	<b>Date:</b> March 2023
--	-------------------------

<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>
--	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>Long Run-Time Thermal Batteries for Long Range Munitions (Army) Test planning conducted during 1-2Q FY 2023. Phase I test articles received in 3Q FY 2023. Phase I testing conducted in 3Q FY 2023. Initiated procurement of optimized phase II test articles in 4Q FY 2023.</p> <p>Spectrometric Gamma Camera (Army) Test articles received in 1Q FY 2023. Limited efficacy testing and equipment compatibility testing occurred in 2-4Q FY 2023.</p> <p>Unmanned Military Vehicle Mobility in Arctic Environments (Army) Received test articles in 1Q FY 2023. Conducted operational testing and demonstrations in 2Q FY 2023. Completed final test and closeout reports in 3Q FY 2023.</p> <p>Three-Dimensional Printed Metal Parts (Army) Test articles received in 1Q FY 2023. Phase I materials characterization testing occurred in 1-3Q FY 2023. Phase II field testing initiated in 4Q FY 2023.</p> <p>Artificial Intelligence for Off-Road Autonomy (Army) Test article contract awarded in 2Q FY 2023. Initiated test planning and setup in 3Q FY 2023.</p> <p>Warfighter Water Purification (Army) Test article contract awarded in 1Q FY 2023. Test articles received in 2Q FY 2023. Physical testing and chemical-biological screening completed in 2Q FY 2023. Initiated device validation and field demonstrations in 3Q FY 2023.</p> <p>Space Qualification Testing of Event Based Sensors (Air Force/Space Force) Project closed out 1Q FY 2023.</p> <p>Comparative Real Time Air Quality Sensing of Pilot Breathing Lines in High-Performance Aircraft (Air Force/Space Force) Custom test articles received in 1Q FY 2023. Completed initial evaluations in 1Q FY 2023. Completed mock flight tests in 2Q FY 2023. Completed final test and closeout reports in 3Q FY 2023.</p> <p>Event Based Sensing for Moving Target Indication (Air Force/Space Force) Conducted airborne testing in 1Q FY 2023. Conducted high altitude balloon testing in 2-3Q FY 2023. Completed final test and closeout reports in 4Q FY 2023.</p> <p>Air Launched small Unmanned Aerial System (sUAS) for Kinetic Engagement (Air Force/Space Force) Test article contract awarded in 1Q FY 2023. Test articles received in 2Q FY 2023. Phase I laboratory testing completed in 3Q FY 2023. Phase II test articles received in 4Q FY 2023.</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>Low Cost Supersonic Turbojet (Air Force/Space Force) Test article contract awarded in 1Q FY 2023. Test articles received in 2Q FY 2023. Phase I test facility upgrade validation completed in 2Q FY 2023. Phase II laboratory baseline performance testing completed in 3Q FY 2023. Phase III high altitude and speed laboratory performance testing completed in 4Q FY 2023.</p> <p>Precision Vertical Takeoff and Landing Unmanned Aerial System (VTUAS) Recovery (Navy/USMC) Phase II mobile landing tests completed in 2Q FY 2023. Phase III general testing on various VTUAS and Phase IV cyber vulnerability testing occurred in 3Q FY 2023. Final test and closeout reports completed in 4Q FY 2024.</p> <p>Extended Reality (XR) Helmet Mounted Display (HMD) (Navy/USMC) Completed mock cockpit development in 1Q FY 2023. Completed HMD cockpit integration in 2Q FY 2023. Completed HMD comparative testing in 3Q FY 2023. Completed final test and closeout reports in 4Q FY 2023.</p> <p>Organic Precision Fires – Infantry ,Light (Navy/USMC) FCT testing was completed in FY 2022. End user evaluations conducted in 1-3Q FY 2023. Final test and closeout reports completed in 4Q FY 2023.</p> <p>Portable High Power Directed Energy Systems for Aviation Support (Navy/USMC) Completed test planning and technology validation in FY 2022. Conducted field demonstrations through FY 2023. Completed final test and closeout reports in 4Q FY 2023.</p> <p>Beyond Lithium-ion Battery for Expeditionary Warfare Support (Navy/USMC) Test article contracts awarded in 1Q FY 2023. Test articles received in 2Q FY 2023. Laboratory testing occurred in 3-4Q FY 2023. Final test and closeout reports completed in 4Q FY 2023.</p> <p>Micro-Remotely Operated Vehicle (ROV) Rapid Response Underwater Incidents and Threats (Navy/USMC) Test articles received and laboratory testing completed in 1Q FY 2023. Prototype integration occurred in 2Q FY 2023. Prototype testing completed in 3Q FY 2023. User demonstrations conducted in 4Q FY 2023. This project continues in FY 2024 with FY 2023 funds.</p> <p>Minimizing Electromagnetic Emissions Switched Beam Antenna (Navy/USMC) Test article contract awarded in 1Q FY 2023. Phase I laboratory performance testing occurred in 2-4Q FY 2023.</p> <p>Fast Rope Insertion/Extraction System (USSOCOM) Test article contracts awarded in 1Q FY 2023. Test articles received and laboratory testing completed in 2Q FY 2023. Application testing completed in 3Q FY 2023. Final test and closeout reports completed in 4Q FY 2023.</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense	<b>Date:</b> March 2023
--	-------------------------

<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Test ing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>
--	---	--

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
---	----------------	----------------	----------------

<p>Green Pulsed Lasers for Optical Communications (Navy/USMC) Initiate test planning in 1Q FY 2023. Test article contract award anticipated for 2Q FY 2023. Test articles expected to be received in 3Q FY 2023. Phase I testing expected to occur in 4Q FY 2023.</p> <p>Limit of Detection of Rapid Response Fentanyl Strips (Army) Initiate test planning in 1Q FY 2023. Award test article contract in 2Q FY 2023. Receive test articles in 3Q FY 2023. Initiate laboratory testing in 4Q FY 2023. This project continues in FY 2024 with FY 2023 funding.</p> <p>Vehicle Filtration Systems (Army) Receive phase I test articles in 2Q FY 2023. Initiate phase I filter testing in 3-4Q FY 2023.</p> <p>Foreign Object Damage Barrier (Navy/USMC) Initiate test planning in 1Q FY 2023. Award test article contract in 2Q FY 2023. Receive test articles in 4Q FY 2023.</p> <p>Naval Enhanced Global Positioning System (GPS) Antenna System (Navy/USMC) Initiate test planning in 1Q FY 2023. Test article contract award anticipated for 2Q FY 2023. Test articles expected to be received in 3Q FY 2023. Initiate laboratory testing in 4Q FY 2023.</p> <p>Intelligent Unmanned Ground Vehicle (UGV) for Contested Environments (Navy/USMC) Initiate test planning in 2Q FY 2023. Award test article contract in 3Q FY 2023. Receive test article in 4Q FY 2023.</p> <p>High Durability Armor Steel (Navy/USMC) Initiate test planning in 1Q FY 2023. Award test article contracts in 2Q FY 2023. Initiate phase I mechanical testing in 3Q FY 2023. Initiate phase II environmental testing in 4Q FY 2023.</p> <p>Ration Heater (Army) Initiate test planning in 1Q FY 2023. Award test article contract in 2Q FY 2023. Receive test articles in 3Q FY 2023. Initiate laboratory testing in 4Q FY 2023.</p> <p>Joint Light Tactical Vehicle (JLTV) Force Protection (Army) Initiate test planning in 1Q FY 2023. Award test contract in 2Q FY 2023. Test article integration to occur in 4Q FY 2023. This project continues in FY 2024 with FY 2023 funding.</p> <p><b>FY 2024 Plans:</b> Description: The Office of the Under Secretary of Defense for Research and Engineering (OUSD R&amp;E), International Prototypes and Experiments (IP&amp;E) Office, selects multiple low-cost projects in the areas of Force Application, Force Protection, Force Support, Logistics, Artificial Intelligence and Machine Learning, Robotics and Autonomous Systems, Interoperability, and</p>			
---	--	--	--

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>Countering Unmanned Systems. These projects will be selected to deliver prototypes for evaluation, assessment, and Service adoption within 12 to 36 months.</p> <p>Soldier Borne Sensor System (Army) Operational evaluation expected to occur in 2Q FY 2024. Final test and closeout reports expected in 3Q FY 2024.</p> <p>Long Run-Time Thermal Batteries for Long Range Munitions (Army) Optimized phase II test articles to be received in 1Q FY 2024. Phase II testing anticipated to occur in 1Q FY 2024. Final test and closeout reports expected to complete in 2Q FY 2024.</p> <p>Spectrometric Gamma Camera (Army) Operational assessment expected to occur in 1-2Q FY 2024. Final test and closeout reports completed in 3Q FY 2024.</p> <p>Three-Dimensional Printed Metal Parts (Army) Phase II field demonstrations expected to occur in 2-3Q FY 2024. Final test and closeout reports expected in 4Q FY 2024.</p> <p>Artificial Intelligence for Off-Road Autonomy (Army) Phase I testing to occur in 1Q FY 2024. Phase II testing to occur in 2Q FY 2024. Phase III testing to occur in 3Q FY 2024. Initiate Phase IV testing in 4Q FY 2024. This project continues in FY 2025 with FY 2024 funding.</p> <p>Warfighter Water Purification (Army) Device validation expected to complete in 1Q FY 2024. Field demonstrations expected to complete in 3Q FY 2024. Final test and closeout reports expected in 4Q FY 2024.</p> <p>Air Launched small Unmanned Aerial System (sUAS) for Kinetic Engagement (Air Force/Space Force) Phase II Common Launch Tube integration and ejection testing planned for 1Q FY 2024. Phase III surrogate aircraft and live testing planned for 2-3Q FY 2024. Final test and closeout reports expected 4Q FY 2024.</p> <p>Low Cost Supersonic Turbojet (Air Force/Space Force) Final test and closeout reports expected to complete in 1Q FY 2024. Micro-Remotely Operated Vehicle (ROV) Rapid Response Underwater Incidents and Threats (Navy/USMC) Final test and closeout reports expected to complete in 1Q FY 2024.</p> <p>Minimizing Electromagnetic Emissions Switched Beam Antenna (Navy/USMC) Phase II environmental testing expected to complete in 1Q FY 2024. Phase II environmental testing expected to complete in 1Q FY 2024. Phase III operational demo anticipated for 3Q FY 2024. Final test and closeout reports expected in 4Q FY 2024.</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Testing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
Green Pulsed Lasers for Optical Communications (Navy/USMC) Phase II testing expected to occur in 1Q FY 2024. Phase III testing expected to occur in 2-3Q FY 2024. Final test and closeout reports expected in 4Q FY 2024.			
Limit of Detection of Rapid Response Fentanyl Strips (Army) Conduct field demonstration and experimentation in 1-2Q FY 2024. Final test and closeout report expected in 3Q FY 2024.			
Vehicle Filtration Systems (Army) Receive phase II test articles in 1Q FY 2024. Initiate phase II environmental testing in 2Q FY 2024. This project continues in FY 2025 with FY 2024 funding.			
Foreign Object Damage Barrier (Navy/USMC) Testing expected to occur in 1-3Q FY 2024. Final test and closeout reports expected in 4Q FY 2024.			
Naval Enhanced Global Positioning System (GPS) Antenna System (Navy/USMC) Field testing expected to occur in 2-3Q FY 2024. Final test and closeout reports expected to complete in 4Q FY 2024.			
Intelligent Unmanned Ground Vehicle (UGV) for Contested Environments (Navy/USMC) Conduct testing in 1-3Q FY 2024. Complete final test and closeout reports in 4Q FY 2024.			
High Durability Armor Steel (Navy/USMC) Complete phase I and II testing in 1Q FY 2024. Conduct phase III operational testing in 2-3Q FY 2024. Final test and closeout reports are expected in 4Q FY 2024.			
Ration Heater (Army) Complete laboratory testing in 1Q FY 2024. Conduct operational testing in 2-3 Q FY 2024. Final test and closeout reports expected in 4Q FY 2024.			
Joint Light Tactical Vehicle (JLTV) Force Protection (Army) Limited efficacy and equipment compatibility testing expected to occur in 1Q FY 2024. Live fire testing expected to occur in 2Q FY 2024. Final test and closeout reports expected in 3Q FY 2024.			
<b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreases from FY 2023 to FY 2024 as major test events occur and several on-going projects complete in FY 2023.			
<b>Title:</b> Foreign Comparative Testing Prototyping & Experimentation Focus Areas	0.636	1.340	12.202
<b>Description:</b> Previously funded effort. The FCT program will select new projects to evaluate allied/partner nation technologies that address emerging DoD capability gaps and provide substantial cost, schedule, and/or performance benefit to the warfighter. As projects are selected, they will be reported individually. Evaluation will be aligned to the National Defense Strategy (NDS)			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Office of the Secretary Of Defense		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 0400 / 3	<b>R-1 Program Element (Number/Name)</b> PE 0603133D8Z / <i>Foreign Comparative Test ing</i>	<b>Project (Number/Name)</b> 313 / <i>Foreign Comparative Testing</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>and current Office of the Under Secretary of Defense, Research and Engineering critical technology areas, to deliver increased readiness and a more lethal Joint Force while strengthening alliances, attracting new partners, and achieving greater performance and affordability.</p> <p><b>FY 2023 Plans:</b> FCT anticipates supporting one to two additional new projects spread across the USD R&amp;E critical technology areas and Service readiness requirements in FY 2023. Deliverables will include integrated products and software that enhance warfighting capabilities across multi-domain battlefield environments. This will be accomplished through test and evaluation of prototypes, demonstrations, and concept experimentation in coordination with the Services and United States Special Operations Command and other DoD Agencies.</p> <p><b>FY 2024 Plans:</b> The FCT anticipates supporting ten to fifteen new projects spread across the USD R&amp;E critical technology areas and Service readiness requirements in FY 2024 and continued support to open FY 2022 and FY 2023 projects. Deliverables will include integrated products and software that enhance warfighting capabilities across multi-domain battlefield environments. This will be accomplished through test and evaluation of prototypes, demonstrations, and concept experimentation in coordination with the Services and United States Special Operations Command and other DoD Agencies.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> This funding will be allocated for the selection of new projects that will commence in FY 2024. Projects will be selected through a merit-based process and will address current OUSD R&amp;E critical technology areas and Service readiness requirements. Funding increases from FY 2023 to FY 2024 due to completion of on-going projects from prior years and selection of new projects.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	24.885	26.802	27.078

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

N/A

**Remarks**

**D. Acquisition Strategy**

Successful FCT projects support capability acquisition in several ways: technology upgrade insertion into a current platform or program providing greater capability or prolonging the life of the weapon system, informed/refined requirements for planned systems, or direct transition/procurement. FCT leverages the Services' and Defense Agencies' most efficient and effective acquisition approaches for rapid prototyping. This includes using Other Transaction Authorities and new or existing contract vehicles within middle-tier acquisition strategy. The FCT Program supports the Service Executive Acquisition strategies and works with each Services and U.S. Special Operation Command to enhance the speed of new technology infusion to maintain overmatch on tomorrow's battlefield.