

# UNCLASSIFIED

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2019 Navy **Date:** February 2018

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> / BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>					<b>R-1 Program Element (Number/Name)</b> PE 0603851M / <i>Joint Non-Lethal Weapons Testing</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	521.096	26.760	29.873	27.581	-	27.581	28.611	28.234	29.850	30.453	Continuing	Continuing
2319: <i>Non-Lethal Weapons</i>	521.096	26.760	29.873	27.581	-	27.581	28.611	28.234	29.850	30.453	Continuing	Continuing

## A. Mission Description and Budget Item Justification

The DoD Non-Lethal Weapons Program was established by the FY96 National Defense Authorization Act. The Office of the Secretary of Defense designated the Commandant of the Marine Corps (CMC) as the DoD NLW Executive Agent (EA). The EA exercises centralized responsibility for joint research and development of non-lethal weapons and technology through the Joint Non-Lethal Weapons Program (JNLWP). The Office of the Under Secretary of Defense for Acquisition, Technology and Logistics serves as the OSD Principal Staff Assistant and oversees, in consultation with the Under Secretary of Defense for Policy, the DoD NLW Executive Agent.

The efforts described in this Program Element (PE) reflect Joint Service research and development (R&D) investment decisions provided by the Joint Non-Lethal Weapons Integrated Product Team, a multi-service flag level corporate board that provides executive oversight and management of the JNLWP for the EA. Research conducted is based on the needs and capabilities of the Services, the Special Operations Command and the Coast Guard, as identified in JROC-approved Joint Non-Lethal Effects Initial Capabilities Documents. This coordinated joint R&D development approach addresses mutual capability gaps and assures the best non-lethal technologies, capabilities and equipment are provided to the operating forces while eliminating duplicative Service investment. Advanced Component Development and Prototypes initiatives provide non-lethal capabilities which directly support the three pillars of the current Quadrennial Defense Review and comprise a fundamental part of DoD's security cooperation efforts to build partner capacity. The resulting capabilities will facilitate a fully integrated non-lethal competency as a complement to lethal firepower, providing force application options for short-of-lethal scenarios.

This PE funds Joint Service research, development, test, and evaluation of non-lethal weapons, devices, munitions and technologies which provide a non-lethal capability to minimize significant injuries as well as undesired damage to property and the environment. Counter-personnel and counter-materiel capability investment areas include directed energy (lasers, millimeter wave and high power microwave), multi-sensory suppression/incapacitation initiatives (acoustics, optical, electro-muscular incapacitation), and other emergent technologies transitioning from coordinated JNLWP Science and Technology PE initiatives. Investments also focus on Joint and allied experimentation, exercise, demonstration and assessment of advanced component and prototype initiatives in order to assist transition of suitable and effective capabilities to both joint and allied operational applications.

The Joint Non-Lethal Weapons Directorate is designated as a R&D organization and was established by the EA to manage the day to day research and development activities of the DoD's JNLWP. Each Service is responsible for their procurement and operating support costs.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy				Date: February 2018	
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 Program Element (Number/Name) PE 0603851M / Joint Non-Lethal Weapons Testing			
B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	27.904	29.873	28.305	-	28.305
Current President's Budget	26.760	29.873	27.581	-	27.581
Total Adjustments	-1.144	0.000	-0.724	-	-0.724
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.726	0.000			
• SBIR/STTR Transfer	-0.407	0.000			
• Program Adjustments	0.000	0.000	-0.337	-	-0.337
• Rate/Misc Adjustments	0.000	0.000	-0.387	-	-0.387
• Congressional General Reductions Adjustments	-0.011	-	-	-	-
Change Summary Explanation					
The FY 2019 funding request was reduced by (\$.337) million to reflect the Department of Navy's effort to support the Office of Management and Budget directed reforms for Efficiency and Effectiveness that include a lean, accountable, more efficient government.					

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603851M / Joint Non-Lethal Weapons Testing				Project (Number/Name) 2319 / Non-Lethal Weapons			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2319: Non-Lethal Weapons	521.096	26.760	29.873	27.581	-	27.581	28.611	28.234	29.850	30.453	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
This project develops non-lethal weapon (NLW) capabilities that minimize fatal or permanent injuries and undesired damage to property and the environment. These capabilities are designed to stun, incapacitate, or hinder movement of individuals, crowds or equipment. The availability of NLW allows commanders less than lethal options, particularly in urban warfare and military operations other than war, i.e. peacekeeping, humanitarian assistance and disaster relief, as well as special operations. The increase of \$1.969M is to support new initiatives in Counter-Materiel Advanced Component Development and Prototypes and Joint and Allied Exercise, Experimentation, Demonstration and Assessment.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Counter-Personnel Advanced Component Development and Prototypes  Articles:								13.504	12.033	11.324	0.000	11.324
								-	-	-	-	-
FY 2018 Plans: - Continued coordination and requirements development for Service counter-personnel (CP) prototyping initiatives within the JNLWP. This includes SOCOM and USCG. - Continued development and assessment of Service-led CP NL prototype initiatives. - Continued maturation of CP directed energy technologies to increase system efficiencies and reduce system size, weight and cost in preparation for transition to joint acquisition programs of record. - Continued the advanced development of CP emerging technologies to support Service capability gaps and priorities as they support the Combatant Commanders. - Continued technology maturation and risk reduction of competing approaches to inform decisions for Service capability development. - Continued prototype development and assessment of advanced payloads for technological capabilities relevant to emerging counter-personnel capability gaps. - Continued prototype development and demonstration for the most promising technologies employing multisensory stimuli. - Continued program management support for CP efforts. - Continued munitions testing and acquisition documentation of NL capability to deny, move and suppress individuals at long ranges from currently fielded weapons systems.												
FY 2019 Base Plans:												

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
Appropriation/Budget Activity 1319 / 4		R-1 Program Element (Number/Name) PE 0603851M / Joint Non-Lethal Weapons Testing		Project (Number/Name) 2319 / Non-Lethal Weapons		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Continue all efforts from FY 2018 except those noted as completed.						
FY 2019 OCO Plans: N/A						
FY 2018 to FY 2019 Increase/Decrease Statement: No significant change from FY 2018 to FY 2019.						
Title: Counter-Materiel Advanced Component Development and Prototypes		9.362	11.336	10.574	0.000	10.574
Articles:		-	-	-	-	-
FY 2018 Plans: - Continued coordination and requirements development for Service counter-material (CM) prototyping initiatives within the JNLWP. This includes SOCOM and USCG. - Continued development and assessment of Service-led CM NL prototype initiatives. - Continued maturation of CM directed energy technologies to increase system efficiencies and reduce system size, weight and cost in preparation for transition to joint acquisition programs of record. - Continued the advanced development of Counter-Materiel emerging technologies to support Service capability gaps and priorities as they support the Combatant Commanders. - Continued technology maturation and risk reduction of competing approaches to inform decisions for Service capability development. - Continued prototype development and assessment of advanced payloads for technological capabilities relevant to emerging counter-materiel capability gaps. - Continued program management support for CM efforts. - Continued development of the conceptual design of non-lethal Directed Energy (DE) vessel-stopping capability, including electro-magnetic and engagement modeling, platform feasibility and integration studies, and target characterization and validation. - Initiated production qualification testing of a Service-endorsed pre-emplaced, counter-materiel, counter vehicle stopping capability. - Initiated Critical Design Review for counter material: Radio Frequency vehicle stopper prototype capability						
FY 2019 Base Plans: - Continue all efforts from FY 2018 except those noted as completed.						

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy				Date: February 2018		
Appropriation/Budget Activity 1319 / 4		R-1 Program Element (Number/Name) PE 0603851M / Joint Non-Lethal Weapons Testing		Project (Number/Name) 2319 / Non-Lethal Weapons		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Initiate advanced component development and prototyping support to the U.S. Navy's candidate Maritime Vessel Stopping capability. <b>FY 2019 OCO Plans:</b> N/A <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> No significant change from FY 2018 to FY 2019.						
<b>Title:</b> Joint and Allied Exercise, Experimentation, Demonstration and Assessment <b>Articles:</b>		3.894	6.504	5.683	0.000	5.683
<b>FY 2018 Plans:</b> - Continued modeling and simulation (M&S) of NLWs in warfighter training/gaming models and performance effects data collection/population to demonstrate/analyze NL effects and support optimization of training. - Continued evaluation of NLWs by Service warfighting laboratories and Joint Staff, J7, Joint and Coalition Warfighting for direct user feedback of various non-lethal (NL) technologies and munitions to include policy and strategy and strategic communication. - Continued engagement with NATO on cooperative security efforts, to include providing input for Systems Analysis and Studies (SAS) Panels and NATO assessment of NLW in appropriate allied scenarios and exercises. Specifically, completed the 2017 NATO Non-Lethal Technology Concept Development Game and Tabletop Exercise - Counter Unmanned Aerial Systems (NNTEX-17C). - Continued interaction with Combatant Commander staffs to evaluate emerging NLW capabilities and their utility in theater operations and Defense of the Homeland missions. - Continued effort to assess the utility, effect, and effectiveness of technologies for incapacitating personnel, clearing facilities, stopping vehicles and vessels, and denying enemy access to protected areas. Specifically, completed support to the JIDO Elephant Foot Concept Demonstration by providing prototype vehicle stopping capabilities for integration into this C-VBIED system of systems concept demonstration. - Continued to identify, test, and evaluate newly developed commercial products that may meet Joint service requirements for specific non-lethal capability set common items. - Continued program management support for Joint and Allied Exercise, Experimentation, Demonstration and Assessment efforts. - Continued support of Combatant Commanders (CCMD) by demonstrating and assessing NLW capabilities for multiple priority mission areas, such as port opening operations; Humanitarian Assistance and Disaster Relief		-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Navy										<b>Date:</b> February 2018	
<b>Appropriation/Budget Activity</b> 1319 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603851M / <i>Joint Non-Lethal Weapons Testing</i>				<b>Project (Number/Name)</b> 2319 / <i>Non-Lethal Weapons</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>											
						<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	
(HA/DR) and Counter-Transnational Organized Crime (CTOC) operations; and harbor and in-transit security operations. - Continued support of two CCMDs by demonstrating and assessing NLW capabilities for vessel interdiction and counter-migration exercises. Specifically, completed support to USAFRICOM in exercise African Lion 2017 and to USEUCOM/USAFRICOM in exercise Phoenix Express 2017. - Initiated leadership of the NATO Special Area Study 133 (SAS-133) panel addressing challenges in fielding NL capabilities.  <b>FY 2019 Base Plans:</b> - Continue all efforts from FY 2018 except those noted as completed. - Complete the 2018 NATO Non-Lethal Technology Exercise - CUAS (NNTEX-18C)  <b>FY 2019 OCO Plans:</b> N/A  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> No significant change from FY 2018 to FY 2019.											
<b>Accomplishments/Planned Programs Subtotals</b>						26.760	29.873	27.581	0.000	27.581	
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• PE 0602651M: <i>Joint Non-Lethal Weapons Applied Research</i>	6.146	6.425	6.349	-	6.349	6.346	6.343	6.468	6.600	Continuing	Continuing
• PE 0603651M: <i>Joint Non-Lethal Weapons Advanced Technology Development</i>	12.790	13.448	13.313	-	13.313	13.307	13.301	13.564	13.840	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b> The JNLW Program strategy is to continue to pursue the fielding of NLW systems through modifying Commercial-Off-The-Shelf (COTS) products for near term capabilities and the development of new technology NLW systems in various stages of acquisition. These are balanced with efforts in state-of-the-art technology investment, experimentation, and modeling and simulation. The acquisition strategy for each weapon system is largely Lead Service dependent. The JNLWP provides											

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851M / <i>Joint Non-Lethal Weapons Testing</i>	<b>Project (Number/Name)</b> 2319 / <i>Non-Lethal Weapons</i>
RDT&E funding while the Services are responsible for procurement and operations and maintenance funding. For complex development programs, such as directed energy research, JNLWP RDT&E funds will support each Service's RDT&E joint application efforts.		
<b>E. Performance Metrics</b> N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
Appropriation/Budget Activity 1319 / 4						R-1 Program Element (Number/Name) PE 0603851M / Joint Non-Lethal Weapons Testing				Project (Number/Name) 2319 / Non-Lethal Weapons					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NLW Product Development	MIPR	ARDEC : Picatinny, NJ	54.732	1.010	Oct 2016	1.129	Oct 2017	3.192	Oct 2018	-		3.192	Continuing	Continuing	Continuing
NLW Product Development	MIPR	SOCOM : McDill AFB, FL	26.065	0.275	Oct 2016	0.283	Oct 2017	0.289	Oct 2018	-		0.289	Continuing	Continuing	Continuing
NLW Product Development	Various	NSWC : Various	42.264	4.688	Oct 2016	4.829	Oct 2017	6.175	Oct 2018	-		6.175	Continuing	Continuing	Continuing
NLW Product Development	MIPR	USAF : Ft. Sam Houston AFB, TX	58.216	0.670	Oct 2016	0.690	Oct 2017	0.525	Oct 2018	-		0.525	Continuing	Continuing	Continuing
NLW Product Development	Various	MCSC : Quantico, VA	32.287	1.432	Oct 2016	1.475	Oct 2017	0.475	Oct 2018	-		0.475	Continuing	Continuing	Continuing
NLW Product Development	Various	Uniformed Services : Various	167.642	9.774	Oct 2016	12.442	Oct 2017	7.718	Oct 2018	-		7.718	Continuing	Continuing	Continuing
Prior Year NLW Product Development	Various	Various : Various	65.401	0.000		0.000		0.000		-		0.000	0.000	65.401	-
Subtotal			446.607	17.849		20.848		18.374		-		18.374	Continuing	Continuing	N/A
Remarks															
Joint Program funds are distributed amongst the USA, USAF, USN, USMC, SOCOM, and USCG in support of NLW research and development efforts. Each Cost Category Item does not correlate to an individual project/effort. They fund multiple non-lethal projects/efforts that are incrementally funded throughout the fiscal year as each service identifies the project/effort requiring funding. October award dates reflect the start of incremental funding and does not indicate that the full amount will be awarded in October.															
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NLW Support Cost	WR	NSWC : Dahlgren, VA	16.774	0.600	Oct 2016	0.618	Oct 2017	0.632	Oct 2018	-		0.632	Continuing	Continuing	Continuing
Subtotal			16.774	0.600		0.618		0.632		-		0.632	Continuing	Continuing	N/A



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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
Appropriation/Budget Activity 1319 / 4						R-1 Program Element (Number/Name) PE 0603851M / Joint Non-Lethal Weapons Testing				Project (Number/Name) 2319 / Non-Lethal Weapons					
Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JNLW Management Support	Various	MCSC : Quantico, VA	16.994	8.311	Oct 2016	8.407	Oct 2017	8.575	Oct 2018	-		8.575	Continuing	Continuing	Continuing
Prior Year Management Services	Various	Various : Various	40.721	0.000		0.000		0.000		-		0.000	0.000	40.721	-
Subtotal			57.715	8.311		8.407		8.575		-		8.575	Continuing	Continuing	N/A
Remarks															
The JNLW Management Support was previously incorporated into the various cost categories instead of being displayed in the corresponding section of the R-3. The Management Services section of the R-3 now reflects the amounts for civilian salaries and contractor program management. The funding fluctuates across the R-2A categories based on the demand signals of the Services, USSOCOM, and the USCG.															
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			521.096	26.760		29.873		27.581		-		27.581	Continuing	Continuing	N/A
Remarks															
Joint Program funds are distributed amongst the USA, USAF, USN, USMC, SOCOM, and USCG in support of NLW research and development efforts. Each Cost Category Item does not correlate to an individual project/effort. They fund multiple non-lethal projects/efforts that are incrementally funded throughout the fiscal year as each service identifies the project/effort requiring funding. October award dates reflect the start of incremental funding and does not indicate that the full amount will be awarded in October.															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2019 Navy

Date: February 2018

## Appropriation/Budget Activity

1319 / 4

## R-1 Program Element (Number/Name)

PE 0603851M / Joint Non-Lethal Weapons  
Testing

## Project (Number/Name)

2319 / Non-Lethal Weapons

FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

**Proj 2319**Counter Vehicle: Radio Frequency Vehicle  
Stopping (RFVS) Technologies: Critical  
Design ReviewCounter Vessel: Vessel Stopping Prototype  
(VSP) Technology Development: Preliminary  
Design ReviewCounter Vessel: Vessel Stopping Prototype  
(VSP) Technology Development: Critical  
Design ReviewCounter Vessel: Vessel Stopping Prototype  
(VSP) Technology Development: Advanced  
Demonstration Model (ADM) Development  
and Integration on Alternative PlatformCounter Vessel: Vessel Stopping Prototype  
(VSP) Technology Development: Land-Based  
Validation and Verification TestingMillimeter Wave (mmW) Radio Frequency  
(RF): Active Denial Technologies (ADT): Size  
Weight Power and Cooling ImprovementsMillimeter Wave (mmW) Radio Frequency  
(RF): Active Denial Technologies (ADT): ADM  
Military Utility Assessment (MUA)Counter Personnel: Long Range Suppression  
Prototype: Ballistics and qualification testing

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Navy			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851M / <i>Joint Non-Lethal Weapons Testing</i>	<b>Project (Number/Name)</b> 2319 / <i>Non-Lethal Weapons</i>	

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2319</b>				
Counter Vehicle: Radio Frequency Vehicle Stopping (RFVS) Technologies: Critical Design Review	4	2018	2	2020
Counter Vessel: Vessel Stopping Prototype (VSP) Technology Development: Preliminary Design Review	3	2018	1	2020
Counter Vessel: Vessel Stopping Prototype (VSP) Technology Development: Critical Design Review	1	2020	2	2021
Counter Vessel: Vessel Stopping Prototype (VSP) Technology Development: Advanced Demonstration Model (ADM) Development and Integration on Alternative Platform	1	2017	4	2023
Counter Vessel: Vessel Stopping Prototype (VSP) Technology Development: Land-Based Validation and Verification Testing	1	2023	4	2023
Millimeter Wave (mmW) Radio Frequency (RF): Active Denial Technologies (ADT): Size Weight Power and Cooling Improvements	1	2017	4	2018
Millimeter Wave (mmW) Radio Frequency (RF): Active Denial Technologies (ADT): ADM Military Utility Assessment (MUA)	4	2018	1	2020
Counter Personnel: Long Range Suppression Prototype: Ballistics and qualification testing	1	2017	3	2020