

**UNCLASSIFIED**

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 3: Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603651M: JT Non-Lethal Wpns Tech Dev							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	13.475	11.749	11.131	0.000	11.131	11.384	11.686	11.936	12.180	Continuing	Continuing
3022: Joint Non Lethal Weapons	11.875	10.952	11.131	0.000	11.131	11.384	11.686	11.936	12.180	Continuing	Continuing
9999: Congressional Adds	1.600	0.797	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.397
A. Mission Description and Budget Item Justification											
<p>The DOD's Joint Non-Lethal Weapons Program (JNLWP) was established by the Secretary of Defense, who assigned centralized responsibility for DOD joint research and development of non-lethal technology to the Commandant of the Marine Corps as the Executive Agent. The Under Secretary of Defense for Acquisition, Technology and Logistics provides direct oversight of the JNLWP.</p> <p>The efforts described in this Program Element (PE) reflect science and technology (S&amp;T) investment decisions provided by the Joint NLW Integrated Product Team, a multi-service flag level corporate board that executes the JNLWP for the Commandant of the Marine Corps. This direction is based on the needs and capabilities of the Services, the Special Operations Command, and the Coast Guard, as identified in the DoD's Non-Lethal Weapons Joint Capabilities Based Assessment Document. This coordinated joint S&amp;T development approach addresses mutual capability gaps and assures the best non-lethal technologies and equipment are provided to the operating forces while eliminating duplicative service S&amp;T investment.</p> <p>This program funds the research and development of next-generation Non-Lethal Weapons (NLWs) and includes performing analysis, technical development efforts, and modeling and simulation necessary to ensure optimum weaponization and use of these NLWs. Next-generation NLW systems focus on long-range localized Non-Lethal (NL) effects to identified threat individuals (or groups of individuals) and/or their threat weapons systems operating in complicated environments such as urban areas, crowds, buildings, vehicles, vessels, and also in close proximity to high-value civilian facilities. By order of the Under Secretary of Defense for Acquisition, Technology, and Logistics, the Marine Corps is established as the Executive Agent for DoD Joint Non-Lethal Weapons RDT&amp;E.</p> <p>Due to the number of efforts in this PE, the programs described herein are representative of the work included in this PE.</p>											

**UNCLASSIFIED**

R-1 Line Item #21

Page 1 of 8

**UNCLASSIFIED**

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy				DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE			
1319: Research, Development, Test & Evaluation, Navy		PE 0603651M: JT Non-Lethal Wpns Tech Dev			
BA 3: Advanced Technology Development (ATD)					
B. Program Change Summary (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	12.984	10.998	0.000	0.000	0.000
Current President's Budget	13.475	11.749	11.131	0.000	11.131
Total Adjustments	0.491	0.751	11.131	0.000	11.131
• Congressional General Reductions		-0.049			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.800			
• Congressional Directed Transfers		0.000			
• Reprogrammings	2.797	0.000			
• SBIR/STTR Transfer	-0.311	0.000			
• Program Adjustments	0.000	0.000	11.131	0.000	11.131
• Congressional Recision Adjustments	0.005	0.000	0.000	0.000	0.000
• Congressional Add Adjustments	-2.000	0.000	0.000	0.000	0.000
Congressional Add Details (\$ in Millions, and Includes General Reductions)					
Project: 9999: Congressional Adds					
Congressional Add: Eye Safe Laser Warning Systems					
Congressional Add: ADS Planar Scanning Ant Sys					
Congressional Add Subtotals for Project: 9999					
Congressional Add Totals for all Projects					
Change Summary Explanation					
Technical: Not applicable.					
Schedule: Not applicable.					
FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.					

**UNCLASSIFIED**

R-1 Line Item #21

Page 2 of 8

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Navy								<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 3: <i>Advanced Technology Development (ATD)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603651M: <i>JT Non-Lethal Wpns Tech Dev</i>				<b>PROJECT</b> 3022: <i>Joint Non Lethal Weapons</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3022: <i>Joint Non Lethal Weapons</i>	11.875	10.952	11.131	0.000	11.131	11.384	11.686	11.936	12.180	Continuing	Continuing

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

This project funds the research and development of next-generation NLWs and includes performing analysis, technical development efforts, and modeling and simulation necessary to ensure optimum weaponization and use of these NLWs. Investment areas include research and development of next-generation NLWs such as: non-lethal directed energy weapons (lasers, millimeter wave and high power microwave) for counter-personnel and counter-material missions; non-lethal counter-personnel technologies (acoustic, optical, and human electro-muscular disruption technologies), and advanced non-lethal materials (including materials for vehicle/vessel stopping and counter-facility applications). Next-generation NLW systems focus on long-range localized NL effects to identified threat individuals (or groups of individuals) and/or their threat weapons systems operating in complicated environments such as urban areas, crowds, buildings, vehicles, vessels, and also in close proximity to high-value civilian facilities.

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

	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
JOINT NON-LETHAL WEAPONS	11.875	10.952	11.131	0.000	11.131
<b><i>FY 2009 Accomplishments:</i></b> <ul style="list-style-type: none"> <li>- Continued effort to assess the general utility, effect, and effectiveness of technologies for incapacitating personnel, clearing facilities, stopping vehicles and vessels, and denying enemy access to protected areas.</li> <li>- Continued design of a man-transportable laser weapons system that can be used for non-lethal counter-personnel or non-lethal counter-materiel applications through ultra-high precision engagement of selected targets with minimal collateral damage.</li> <li>- Continued research to define the optimum approaches, technologies and tactics necessary to clear a facility/building with and without entry.</li> <li>- Continued characterization of bioeffects induced via acoustic non-lethal weapon concepts.</li> <li>- Continued modeling/research to develop an understanding of the complex relationships between individual, group and crowd dynamics in order to predict the macro effects of NLWs. Specifically,</li> </ul>					

**UNCLASSIFIED**

R-1 Line Item #21

Page 3 of 8

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 3: Advanced Technology Development (ATD)		R-1 ITEM NOMENCLATURE PE 0603651M: JT Non-Lethal Wpns Tech Dev		PROJECT 3022: Joint Non Lethal Weapons		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
investigate factors that cause crowds to move to violent behavior, and what non-lethal technologies will be effective in controlling or mitigating violent crowd behavior. - Continued effort to examine and optimize non-lethal effects and effectiveness of various non-lethal stimuli, to include light, acoustics, electrical, high power laser, high power microwave and active denial technology. Research includes human effects analysis with respect to existing non-lethal stimuli and other emerging system stimuli to characterize behaviors and their operational relevance. - Continued non-lethal effects characterization through modeling and effects testing using the Advanced Total Body Model. - Continued prototype development and demonstration of the most promising candidate technologies employing multi-sensory stimuli. - Continued investigations of technology advancements to miniaturize proven non-lethal weapon prototypes /demonstrators to enable their transition to tactically relevant, cost effective capabilities in the field. - Completed demonstration and transition of the most effective vehicle/vessel stopping technologies to higher categories of development/acquisition. - Completed demonstration and transition of the most effective directed energy technologies with counter-personnel and counter-materiel applications to higher categories of development/acquisition. - Initiated prototype development of advanced payloads for candidate technological capabilities with applications relevant to emerging capability gaps. - Initiated prototype development and demonstration of the most promising candidate technologies addressing the extended range/duration incapacitation capability gap.  Acquisition Workforce Fund - Funded DoD Acquisition Workforce Fund.  FY 2010 Plans: - Continue all efforts from FY 2009, less those noted as completed above. - Complete characterization of bioeffects induced via acoustic non-lethal weapon concepts.						

**UNCLASSIFIED**

R-1 Line Item #21

Page 4 of 8

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 3: Advanced Technology Development (ATD)		R-1 ITEM NOMENCLATURE PE 0603651M: JT Non-Lethal Wpns Tech Dev		PROJECT 3022: Joint Non Lethal Weapons	
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<div>- Initiate transition to higher levels of development and demonstration for the most promising candidate technologies employing multi-sensory stimuli.</div> <div>FY 2011 Base Plans:<ul style="list-style-type: none"><li>- Continue all efforts from FY 2010, less those noted as completed above.</li><li>- Complete design of a man-transportable laser weapons system that can be used for non-lethal counter-personnel or non-lethal counter-materiel applications through ultra-high precision engagement of selected targets with minimal collateral damage. This effort was discontinued during FY09 based on ineffective results demonstrated during counter-personnel laser in-field testing. The counter-materiel application no longer meets the NLW definition per the JROC-approved Non-Lethal Effects Joint Capabilities Document (JCD).</li><li>- Continue to address non-lethal counter-personnel capability gaps with alternative directed energy technologies.</li><li>- Complete investigations of technology advancements to miniaturize proven non-lethal weapon prototypes/ demonstrators to enable their transition to tactically relevant, cost effective capabilities in the field.</li><li>- Complete prototype development and demonstration of the most promising candidate technologies employing multi-sensory stimuli and transition best candidates to higher levels of technology development and demonstration.</li><li>- Initiate transition to higher levels of technology development and demonstrate the most promising directed energy technologies under consideration for counter-personnel and counter-material applications.</li><li>- Initiate technology development employing optimized electro-muscular disruption waveforms and mechanisms for an extended duration counter-personnel suppression capability.</li></ul></div>					
Accomplishments/Planned Programs Subtotals	11.875	10.952	11.131	0.000	11.131

**UNCLASSIFIED**

R-1 Line Item #21

Page 5 of 8

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Navy		<b>DATE:</b> February 2010
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 3: <i>Advanced Technology Development (ATD)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603651M: <i>JT Non-Lethal Wpns Tech Dev</i>	<b>PROJECT</b> 3022: <i>Joint Non Lethal Weapons</i>
<p><b><u>C. Other Program Funding Summary (\$ in Millions)</u></b> N/A</p> <p><b><u>D. Acquisition Strategy</u></b> N/A</p> <p><b><u>E. Performance Metrics</u></b>  The primary objective of this Program Element is the development of technologies that lead to the next-generation of Non-Lethal Weapons which address identified and prioritized joint NLW capability gaps. The program consists of a collection of projects for the development and evaluation of feasibility demonstration models. Individual project metrics reflect the technical goals of each specific project. Typical metrics include both the effectiveness of the technology, human effects and effectiveness, mitigation of high priority joint NLW capability gaps, and potential for compliance with policy and legislation. Overarching considerations include the advancement of related Technology Readiness Levels and Human Effects Readiness Levels, the degree to which project investments are leveraged with other performers, reduction in life cycle cost upon application of the technology, and the identification of opportunities to transition technology to higher categories of development.</p>		

**UNCLASSIFIED**

R-1 Line Item #21

Page 6 of 8

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy								DATE: February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: Research, Development, Test & Evaluation, Navy BA 3: Advanced Technology Development (ATD)				<b>R-1 ITEM NOMENCLATURE</b> PE 0603651M: JT Non-Lethal Wpns Tech Dev				<b>PROJECT</b> 9999: Congressional Adds			
<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
9999: Congressional Adds	1.600	0.797	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.397
<b>A. Mission Description and Budget Item Justification</b> Congressional Interest Items not included in other Projects.											
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>											
							<b>FY 2009</b>	<b>FY 2010</b>			
Congressional Add: Eye Safe Laser Warning Systems <i>FY 2010 Plans:</i> This effort supports Dynamic Eye-Safe Imaging Laser research.							0.000	0.797			
Congressional Add: ADS Planar Scanning Ant Sys <i>FY 2009 Accomplishments:</i> The Active Denial Planar Scanner Antenna System Congressional add funds the Joint Non Lethal Weapons Program's development and demonstration of a compact millimeter-wave planar scanner antenna as an Active Denial Weapon subsystem capability.							1.600	0.000			
Congressional Adds Subtotals							1.600	0.797			
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A											
<b>D. Acquisition Strategy</b> N/A											

# UNCLASSIFIED

R-1 Line Item #21

Page 7 of 8

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 3: <i>Advanced Technology Development (ATD)</i>	R-1 ITEM NOMENCLATURE PE 0603651M: <i>JT Non-Lethal Wpns Tech Dev</i>	PROJECT 9999: <i>Congressional Adds</i>
<b>E. Performance Metrics</b> Congressional Interest Items not included in other Projects.		