Exhibit R-2, PB 2010 Office of Secretary Of Defense RDT&E Budget Item Justification									DATE: May 2009	
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)					R-1 ITEM NOMENCLATURE PE 0603000D8Z Joint Munitions Advanced Technology					
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	3.941	9.915	23.538						Continuing	Continuing
P002: Insensitive Munitions Advanced Technology	3.941	9.915	20.428						Continuing	Continuing
P301: Enabling Fuze Advanced Technology	0.000	0.000	3.110						Continuing	Continuing

A. Mission Description and Budget Item Justification

This program addresses advanced technology development associated with improving the lethality, reliability, safety and survivability of munitions and weapon systems. The goal is to develop and demonstrate joint enabling technologies that can be used by Program Managers as they develop their specific weapon programs. The program invests in and demonstrates technologies from a Joint Service perspective, thus insuring the development of technology with the broadest applicability while avoiding duplication of efforts.

This effort will demonstrate enabling technologies needed to develop weapons in compliance with Insensitive Munitions (IM) requirements established in United States Code, Title 10, Chapter 141, Section 2389 and DoDI 5000.1. This effort will take promising technologies demonstrated at the laboratory scale and transition them into demonstration programs utilizing generic hardware based on priority munitions identified in the Program Executive Office (PEO) IM Strategic Plans. In this way, promising formulations, ingredients, case technologies, liners and coatings can be integrated into a munition configuration and its ability to improve the IM response can be validated. Mature IM technology can be transitioned, thereby decreasing their program costs and schedule risk and facilitating their spin-off into other non-compliant munitions within their portfolios.

This effort will also demonstrate fuze enabling technologies needed to develop weapons that address priority capability areas identified in the Guidance for Development of the Force, the Secretary of Defense Memorandum, DoD Policy on Cluster Munitions and Unintended Harm to Civilians, and shortfalls in current weapon systems. This effort will take promising technologies demonstrated at the laboratory scale and transition them into demonstration programs utilizing generic hardware based on priority capabilities and technology needs identified and validated by the Program Executive Officers (PEOs) and the Heads of the Service S&T communities. In this way, promising multi-point initiation architectures, high reliability fuze architectures, survivable components, modular fuze packaging, and components produced based on ease of manufacturing can be integrated into a munition configuration and its ability to address required capability needs can be validated. Mature fuze technology can be transitioned, thereby decreasing program costs and schedule risk and facilitating their spin-off into other munitions within their portfolios.

Exhibit R-2, PB 2010 Office of Secretary Of Defense **RDT&E Budget Item Justification**	**DATE:** May 2009
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)	**R-1 ITEM NOMENCLATURE** PE 0603000D8Z Joint Munitions Advanced Technology

Under the Joint IM Technology Program (JIMTP), investments are focused on specific munition areas that have been identified by the Science and Technology community and validated by the technology needs identified in the IM Strategic Plans submitted by the PEOs. These five munitions areas are: 1) high performance rocket propulsion, 2) minimum smoke rocket propulsion, 3) large caliber gun propulsion, 4) anti-armor warheads, and 5) blast and fragmentation warheads.

Under the Joint Fuze Technology Program (JFTP), investments are focused on specific capability areas that have been identified by Department strategic guidance and current shortfalls in weapon systems and will be validated by the Program Executive Officers (PEOs) and the Heads of the Service S&T communities. These four capability areas are: 1) Hard Target Survivable Fuzing, 2) Tailorable Effects Weapon Fuzing, 3) High Reliability Fuzing, 4) and Enabling Fuze Technologies and Common Architecture.

Munition Area Technology Groups (MATGs) and Fuze Area Technology Groups (FATGs) have been established for each munitions and capability area and are tasked with 1) coordinating, establishing, and maintaining five-year technology development plans and roadmaps, 2) coordinating biannual meetings to review technical and programmatic details of each funded and proposed effort, 3) developing and submitting Technology Transition Agreements in coordination with appropriate PEOs for insertion in their IM Strategic Plans / Fuze Technology Development Plan, and 4) interfacing with other MATGs / FATGs and IM / fuze science and technology projects as appropriate. The JIMTP and JFTP will utilize a Technical Advisory Committee (TAC) (consisting of senior DoD and DOE laboratory representatives and senior Munitions PEO representatives) to provide program oversight, policy, direction and priorities during its annual meeting.

B. Program Change Summary ($ in Millions)

	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget	3.966	15.970	20.802	
Current BES/President's Budget	3.941	9.915	23.538	
Total Adjustments	-0.025	-6.055	2.736	
Congressional Program Reductions		-6.000		
Congressional Rescissions		-0.055		
Total Congressional Increases				
Total Reprogrammings				
SBIR/STTR Transfer	-0.017			
Undistributed Reduction	-0.008		-0.104	
Additional Project added to this PE			3.150	
Other			-0.310	

Exhibit R-2a, PB 2010 Office of Secretary Of Defense RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603000D8Z Joint Munitions Advanced Technology					PROJECT NUMBER P002	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
P002: Insensitive Munitions Advanced Technology	3.941	9.915	20.428						Continuing	Continuing

A. Mission Description and Budget Item Justification

This RDT&E effort will demonstrate enabling technologies needed to develop weapons in compliance with Insensitive Munitions (IM) requirements established in United States Code, Title 10, Chapter 141, Section 2389 and DoDI 5000.1. This effort will take promising technologies demonstrated at the laboratory scale and transition them into demonstration programs utilizing generic hardware based on priority munitions identified in the Program Executive Officer (PEO) IM Strategic Plans. Mature demonstrated IM technology can be transitioned, thereby decreasing their program costs and schedule risk and facilitating spin-offs to other non-compliant munitions within their portfolios.

Under the Joint Insensitive Munitions Program (JIMTP), investments are focused on five Munition Areas: High Performance Rocket Propulsion, Minimum Signature Rocket Propulsion, Blast and Fragmentation Warheads, Anti-Armor Warheads, and Large Caliber Gun Propulsion. Munition Area Technology Groups (MATGs) under tri-service leadership have developed technology roadmaps for each Munition Area which are used to guide investments based on goals consistent with the DoD IM Strategic Plan. These IM technologies, alone or in combination, will be incorporated in hardware, simulating real-world munitions, to demonstrate their utility and feasibility as part of Technology Transition Agreements with PEOs.

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Insensitive Munitions Advanced Technology Development	3.941	9.915	20.428	
This RDT&E effort will demonstrate enabling technologies needed to develop weapons in compliance with Insensitive Munitions (IM) requirements established in United States Code, Title 10, Chapter 141, Section 2389 and DoDI 5000.1. This effort will take promising technologies demonstrated at the laboratory scale and transition them into demonstration programs utilizing generic hardware based on priority munitions identified in the Program Executive Officer (PEO) IM Strategic Plans. Mature demonstrated IM technology can be transitioned, thereby decreasing their program costs and schedule risk and facilitating spin-offs to other non-compliant munitions within their portfolios.				

Exhibit R-2a, PB 2010 Office of Secretary Of Defense RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603000D8Z Joint Munitions Advanced Technology	PROJECT NUMBER P002

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Under the Joint Insensitive Munitions Program (JIMTP), investments are focused on five Munition Areas: High Performance Rocket Propulsion, Minimum Signature Rocket Propulsion, Blast and Fragmentation Warheads, Anti-Armor Warheads, and Large Caliber Gun Propulsion. Munition Area Technology Groups (MATGs) under tri-service leadership have developed technology roadmaps for each Munition Area which are used to guide investments based on goals consistent with the DoD IM Strategic Plan. These IM technologies, alone or in combination, will be incorporated in hardware, simulating real-world munitions, to demonstrate their utility and feasibility as part of Technology Transition Agreements with PEOs. *FY 2008 Accomplishments:* (Rocket Motors) Composite case demonstration designs and case tooling fabrication 50% complete. (Anti-armor Warheads) Initial vented liner designs completed and hardware loaded for testing. (General Purpose Bombs) Mitigation of Sympathetic Reaction in General Purpose Bombs - Successfully established processing properties for two new explosive formulations and scaled-up both to the gallon level. (Artillery) Six 544-kg batches of IMX-101 were produced in manufacturing environment at BAE Holston for reliability and safety evaluation. Replacement explosive shown to be more favorable for gun launch safety. *FY 2009 Plans:* (Rocket Motors) Fabricate and perform initial structural and baseline IM tests on demonstration rocket motors for minimum signature and high-performance rocket applications. Scale-up high-performance composite propellant, for Tomahawk class motors, to 50 gallon batch for producibility. Demonstrate high-performance composite propellant IM response and ballistic performance in sub-scale analogue motors. (Anti-Armor Warheads) Complete proof-of principal IM testing for liner venting of anti-armor warhead. Demonstrate that liner venting does not adversely impact warhead performance. Demonstrate fragment impact mitigation technology on candidate warhead. (Artillery/Mortars) Complete IM and performance demonstration and transition TNT replacement explosive for artillery applications. (GP Bombs) Conduct full-scale 500-lb size environmental testing on the reactive liner concept. Down-select explosive formulation and conduct sub-scale IM demonstrations showing reactive liner benefit for preventing sympathetic detonation. (Air-to-Air Warheads) Demonstrate novel warhead concept to reduce response level to impact by fragments.				

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APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603000D8Z Joint Munitions Advanced Technology	PROJECT NUMBER P002

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
FY 2010 Plans: (Rocket Motors) Venting technology demonstrations in minimum signature and high-performance 5-10-inch class motors. Scale up high-performance composite propellant to 150-gal batch. Demonstrate IM improvement and ballistic performance from high-performance propellant in 20-inch analog and 70-lb motors respectively. Complete venting design and begin IM demonstration for small-diameter high-quantity minimum signature rocket motors. (Anti-Armor Warheads) Demonstrate IM and no degradation in performance with a liner venting and fragment impact mitigation sleeve technology on anti-armor missile warhead. (Artillery/Mortars) Complete IM and performance demonstration and transition Comp-B replacement explosive for mortars and light-weight artillery (GP Bombs) Complete full-scale IM and performance demonstration of reactive liner in full-scale 500-lb bomb. Begin demonstration of new initiation system for very insensitive main charge explosive fills.				

C. Other Program Funding Summary ($ in Millions)

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
PE 0602000D8Z P000 BA 2 /Joint Munitions Technology	12.152	15.171	15.112						Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2a, PB 2010 Office of Secretary Of Defense RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603000D8Z Joint Munitions Advanced Technology					PROJECT NUMBER P301	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
P301: Enabling Fuze Advanced Technology	0.000	0.000	3.110						Continuing	Continuing

A. Mission Description and Budget Item Justification

This is a new project under Joint Munitions.

This RDT&E effort will also demonstrate fuze enabling technologies needed to develop weapons that address priority capability areas identified in the Guidance for Development of the Force, the Secretary of Defense Memorandum, DoD Policy on Cluster Munitions and Unintended Harm to Civilians, and shortfalls in current weapon systems. This effort will take promising technologies demonstrated at the laboratory scale and transition them into demonstration programs utilizing generic hardware based on priority capabilities and technology needs identified and validated by the Program Executive Officers (PEOs) and the Heads of the Service S&T communities. Mature demonstrated fuze technology can be transitioned, thereby decreasing their program costs and schedule risk and facilitating spin-offs to other munitions within their portfolios.

Under the Joint Fuze Technology Program (JFTP), investments are focused on specific capability areas that have been identified by Department strategic guidance and current shortfalls in weapon systems and validated by the Program Executive Officers (PEOs) and Heads of the Service S&T communities. These four capability areas are: 1) Hard Target Survivable Fuzing, 2) Tailorable Effects Weapon Fuzing, 3) High Reliability Fuzing, 4) and Enabling Fuze Technologies and Common Architecture.

B. Accomplishments/Planned Program ($ in Millions)	**FY 2008**	**FY 2009**	**FY 2010**	**FY 2011**
Enabling Fuze Advanced Technology	0.000	0.000	3.110	
This RDT&E effort will also demonstrate fuze enabling technologies needed to develop weapons that address priority capability areas identified in the Guidance for Development of the Force, the Secretary of Defense Memorandum, DoD Policy on Cluster Munitions and Unintended Harm to Civilians, and shortfalls in current weapon systems. This effort will take promising technologies demonstrated at the laboratory scale and transition them into demonstration programs utilizing generic hardware based on priority capabilities and technology needs identified and validated by the Program Executive Officers (PEOs) and the Heads of the Service S&T communities. Mature demonstrated fuze technology can be transitioned, thereby decreasing their program costs and schedule risk and facilitating spin-offs to other munitions within their portfolios.				

Exhibit R-2a, PB 2010 Office of Secretary Of Defense RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603000D8Z Joint Munitions Advanced Technology	PROJECT NUMBER P301

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
FY 2010 Plans: (Hard Target Fuzing) Demonstrate Hardened Miniature Fuze System in high-speed sled tests and demonstate in legacy high reliability penetrator. (Tailorable Effects Fuze) Generate selectable yield warhead multi-point initiation architecture and control concepts including: a) architectures utilizing lower energy detonators/initiators and b) non-conventional multi-point initiation architectures such as energetic multi-points. (High Reliability) Develop concepts for high reliability fuze architecture for cluster munitions fuzing. Identify specific technologies that would provide a significant increase in the overall fuze reliability. (Enabling Technologies) Conduct assessment of common fuze architecture technologies: safety components, modular electronics, sensors, interfaces, and packaging.				

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A