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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	195.652	121.735	106.100	-	106.100	99.873	95.819	96.840	103.977	Continuing	Continuing
MD20: <i>Israeli Upper Tier</i>	-	50.766	53.220	-	53.220	50.892	52.607	54.368	55.660	Continuing	Continuing
WX26: <i>Israeli ARROW Program</i>	123.877	-	-	-	-	-	-	-	-	0.000	123.877
MD26: <i>Israeli ARROW Program</i>	-	24.247	11.755	-	11.755	10.665	10.663	10.701	11.142	Continuing	Continuing
WX34: <i>Short Range Ballistic Missile Defense</i>	71.775	-	-	-	-	-	-	-	-	0.000	71.775
MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>	-	46.722	41.125	-	41.125	38.316	32.549	31.771	37.175	Continuing	Continuing

Note

Prior to FY 2010 the MDA's U.S. Israeli Cooperative programs were listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C).

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Projects WX26, and WX34 for FY 2010 are now captured in Projects MD20, MD26, and MD34.

A. Mission Description and Budget Item Justification

Since 1986, the United States and the State of Israel have cooperated on missile defense. MDA has three significant initiatives with Israel to develop and improve their indigenous capability to defend against short and medium range ballistic missiles. These include the Arrow Weapon System (AWS), the David's Sling Weapon System (DSWS) for Short Range Ballistic Missile Defense (SRBMD) and a new Arrow-3 Interceptor. MDA is also developing, testing and exercising interoperability between U.S. BMDS systems and the Israeli Missile Defense Architecture to ensure Israeli systems can be integrated into the global BMDS.

Note:

Planned programs assume matching contributions from Israel per international agreements.

System Element Description:

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APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	PE 0603913C: <i>ISRAELI COOPERATIVE</i>

U.S.-Israel Cooperative Programs consist of the following major efforts:

Arrow System Improvement Program:

The Arrow System Improvement Program (ASIP) enhances baseline Arrow Weapon System capabilities against more stressing evolving regional threats by increasing the total defended area by approximately 50 percent. ASIP development will be implemented in a block upgrade program that includes ground and flight testing. The program also includes the development of Arrow co-manufacturing capability, co-production of the interceptor and the continued development of Arrow's interoperability with U.S. Ballistic Missile Defense Systems (BMDS) via Joint Tactical Information Data System (JTIDS) /Link-16 common communication architecture. Related activities include the Israeli Test Bed (ITB), and the Israeli Systems Architecture and Integration (ISA&I) study that assesses requirements and growth paths for the 2020 Israel missile defense architecture. The ASIP Agreement concludes in 2016.

Upper Tier Project:

Beginning in FY 2008, the U.S. and Israel began jointly assessing solutions for an upper-tier component for Israel's Missile Defense Architecture. By adding an upper-tier capability to their current BMD architecture, Israel will increase the system's capability against advanced threats by providing approximately four times the current Arrow-2 battlespace. The technology and schedule for Arrow-3 have been assessed by MDA as high risk. Therefore, MDA has developed detailed Knowledge Points to assess Israel's development progress for Arrow-3. In addition, MDA and the Israeli Ministry of Defense continue to implement practices that allow for the more effective use of program management tools to ensure risk is adequately managed.

David's Sling Project:

The David's Sling Weapon System is designed to counter short range rockets and missiles and serve as a lower-tier to the Arrow Weapon System. The first fielded block capability will perform the short range rocket and missile defense mission. Subsequent blocks will address a cruise missile defense capability per 2010 Congressional direction.

System Element Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS): U.S. Israeli cooperative programs such as the Upper Tier project and the David's Sling Weapon System are not part of the BMDS. MDA is working to ensure interoperability between U.S. BMDS assets and the Israeli Missile Defense Architecture.

Major System Element Goals:

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These programs continue U.S. strategic cooperation with the State of Israel in Missile Defense.

Israel's primary goal is the development of a layered Anti-Ballistic Missile System for defending Israel and its civilian population.

U.S. goals are to assist in providing regional stability, ensure interoperability between Israeli systems and the U.S. BMDS, and to derive U.S. benefits from technologies developed under the cooperative programs.

B. Program Change Summary (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	201.323	121.735	111.100	-	111.100
Current President's Budget	195.652	121.735	106.100	-	106.100
Total Adjustments	-5.671	-	-5.000	-	-5.000
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-3.038	-			
• SBIR/STTR Transfer	-2.454	-			
• Other Adjustment Detail	-0.179	-	-5.000	-	-5.000

Change Summary Explanation

The FY 2012 \$5.000 million dollar decrease in this program element is the result of efficiency savings.

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD20: <i>Israeli Upper Tier</i>	-	50.766	53.220	-	53.220	50.892	52.607	54.368	55.660	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

This project code encompasses MDA's U.S.-Israeli cooperative programs for the Israeli Upper Tier program. It has been separated out from the WX26 project code found in FY 2010, and exhibits are established under the MD20 project code.

A. Mission Description and Budget Item Justification

This project provides funding for the Upper Tier component of the Arrow Weapon System (AWS) development. The Upper Tier Interceptor will provide Israel an indigenous capability to defend against medium and long range ballistic missiles. This Upper Tier capability will be provided through the Block 5 AWS. In addition to the geo-strategic goals of the Upper Tier cooperative effort, the United States derives technical benefit from its participation in these projects and gains knowledge and experience of the Israeli Defense Forces operation of a multi-layered defense architecture. U.S. participation in the Upper Tier Project development effort also ensures interoperability of the Arrow-3 and the Israeli Missile Defense System with deployed U.S. missile defense assets.

The Upper-Tier Interceptor Project Agreement was signed in 2010. This agreement states that the project will be jointly managed by the U.S. Missile Defense Agency and the Israeli Missile Defense Organization. The agreement also documents the U.S.-Israeli cost share, in which the development costs will be equitable between the U.S. and Israel, with Israel providing matching contributions. However a portion of the Israeli cost share is from non-financial contributions such as background information and facilities.

NOTE: Planned Program assumes matching Israeli financial and non-financial contributions per our international agreements.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2010	FY 2011	FY 2012
Title: Upper Tier	-	50.766	53.220
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments:			
Funding for these FY2010 accomplishments are reported in prior year budget project WX26 of (\$52,085).			
-Conducted hardware Critical Design Review for the Arrow-3 interceptor enabling production of the first fly-out test interceptor.			
-Conducted 5 Element Level Knowledge Point demonstrations of hardware components in optical seeker and propulsion systems.			

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
<ul style="list-style-type: none"> -Conducted initial Arrow 3 performance analysis studies which enabled assessment of capabilities to meet performance requirements. -Conducted initial Arrow 3 component testing to validate critical component designs. -Completed negotiations on the Upper-Tier Interceptor project agreement. <p><i>FY 2011 Plans:</i></p> <ul style="list-style-type: none"> -Conduct first interceptor fly-out test of the Arrow-3 Interceptor. -Conduct 5 Element Level Knowledge Point demonstrations to provide critical data to assess viability of component design. <p>-Focus on propulsion, seeker hardware and avionics demonstrations.</p> <ul style="list-style-type: none"> -Develop preliminary design for Arrow-3 integration into the Block 5 Arrow Weapon System. -Deliver prototype Arrow-3 canister and launcher <p><i>FY 2012 Plans:</i></p> <ul style="list-style-type: none"> -Conduct 3 Element Level Knowledge Point demonstrations to provide critical data to assess viability of component design. <p>-Focus on demonstration of seeker functional capability and system performance.</p> <ul style="list-style-type: none"> -Conduct second interceptor fly-out test of the Arrow-3 Interceptor. -Conduct software Critical Design Review to finalize tactical system software. -Conduct Production Readiness Review. -Conduct target fly-out test. 			
Accomplishments/Planned Programs Subtotals	-	50.766	53.220

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

N/A

D. Acquisition Strategy

As a bi-lateral cooperative program with the State of Israel, the Upper Tier Project does not follow standard DoD Acquisition Practices. The Upper-Tier Interceptor Project Agreement under the RDT&E Framework agreement between the U.S. and Israel creates a joint program office to manage this program. This agreement allows Israel to contract on behalf of the United States. The DoD U.S. Israeli Cooperative Program Office jointly manages the Upper Tier program with IMoD to ensure that all systems are delivered on time, on budget and meet the needs of the warfighter. Program funding is equitable between the U.S. and Israel with Israel providing matching contributions. A portion of the Israeli cost share comes from non-financial contributions such as background information generated prior to joint program initiation. With the Upper Tier Interceptor, Israel Ministry of Defense (IMoD) will contract to Israel Aerospace Industries (IAI). IAI subcontracts to Israeli and U.S. companies such as Boeing.

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE	PROJECT MD20: Israeli Upper Tier
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Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Upper Tier Upper Tier MD20	C/CPFF	Israel Aerospace Industries (IAI):Israel	52.085	50.766	Jul 2011	53.220	Jul 2012	-		53.220	0.000	156.071	103.986
Subtotal			52.085	50.766		53.220		-		53.220	0.000	156.071	103.986

Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Management Services (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-	0.000	0.000	0.000

			Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			52.085	50.766		53.220		-		53.220	0.000	156.071	103.986

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Arrow-3 Hardware Critical Design Review (CDR)	3	2010	3	2010
Arrow-3 Flight Test - FY11	1	2011	4	2011
Arrow-3 Flight Test - FY12	1	2012	4	2012
Arrow-3 Software Critical Design Review (CDR)	1	2012	4	2012
Arrow-3 Production Readiness Review (PRR)	1	2012	4	2012
Israeli Cooperative Intercept Flight Test - FY13	1	2013	4	2013
Israeli Cooperative Intercept Flight Test - FY14	1	2014	4	2014

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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX26: <i>Israeli ARROW Program</i>	123.877	-	-	-	-	-	-	-	-	0.000	123.877
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Prior to FY 2010, this program was listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C) with the project code of WX26. For FY 2011 and beyond the program is split into MD20 for Israeli Upper Tier, and MD26 for ASIP.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2010	FY 2011	FY 2012
Title: Israeli ARROW Program	123.877	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: See FY 2010 Accomplishments for Israeli Upper Tier in project MD20 and FY 2010 Accomplishments for Arrow System Improvement Program in project MD26 in this Program Element.			
Accomplishments/Planned Programs Subtotals	123.877	-	-

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

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD26: <i>Israeli ARROW Program</i>	-	24.247	11.755	-	11.755	10.665	10.663	10.701	11.142	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

This Program Element encompasses MDA's U.S.-Israeli cooperative programs. Prior to FY 2010, these programs were listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C).

In FY 2010 these programs were budgeted under this Program Element with a project code of WX26.

A. Mission Description and Budget Item Justification

This project provides funding for Arrow Weapon System (AWS) development, to include the Arrow System Improvement Program (ASIP), the Arrow Missile Production Program (AMPP) for the co-production of Arrow Interceptors, the Israeli Test Bed (ITB) experiments to evaluate Human-In-The-Loop (HIL) battle management, and the Israeli Systems Architecture and Integration (ISA&I) studies to assess Israel's future 2020 Missile Defense Architecture. The AWS provides Israel an indigenous capability to defend against short and medium range ballistic missiles. The ASIP effort will enhance the performance of the AWS to defeat longer-range and more robust ballistic missile threats expected to be introduced in the Middle East in the near future. Testing of the enhanced AWS in the U.S. against U.S. targets is planned to verify Arrow's improved performance and capability. The ASIP also ensures AWS interoperability with the U.S. BMDS elements such as Terminal High Altitude Area Defense (THAAD), AEGIS, Command, Control, Battle Management and Communications (C2BMC), AN/TPY-2, and PATRIOT through ground tests, flight tests, and operational exercises. Co-production will continue increased production capacity of the Arrow II interceptor. The ITB and ISA&I efforts will continue to support AWS development as well as to define future missile defense architectures and growth paths.

NOTE: Planned Program assumes matching Israeli financial and non-financial contributions per our international agreements.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2010	FY 2011	FY 2012
Title: Arrow System Improvement Program	-	5.912	5.393
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget project WX26 (\$41,000).			
The Arrow System Improvement Program (ASIP) is the fourth phase of the cooperative effort which began in 1988 to provide Israel with an indigenous missile defense and ensure the Arrow Weapon System (AWS) retains system effectiveness against			

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p>evolving longer-range, more robust regional Ballistic Missile threats. This initiative commenced on March 13, 2001 under the ASIP International Agreement between the United States and the State of Israel and runs through 2016. AWS Block 4.0 development is near completion. AWS Block 5.0 will add an upper tier component to the AWS. The AWS is interoperable with U.S. BMDS elements through the Link-16 network. Interoperability is tested through ground test, flight test, and operational exercises incrementally as system upgrades are delivered and fielded.</p> <p>Interdependency: BMDS elements Terminal High Altitude Area Defense (THAAD), AEGIS, Command, Control, Battle Management and Communications (C2BMC), AN/TPY-2, and PATRIOT participate in ground testing and exercises with the AWS.</p> <p>-Conducted Joint Interoperability Exercise Juniper Cobra with Israel and U.S. forces to validate coalition architecture and joint concept of operations.</p> <p>FY 2011 Plans:</p> <ul style="list-style-type: none"> -Conduct AWS Block 5.0 System Requirements Review (SRR) to finalize system requirements. -Conduct AWS Block 5.0 Preliminary Design Review to establish initial design. -Conduct AWS Block 4.0 flight test in the U.S. -Conduct target fly-out flight test in Israel. <p>FY 2012 Plans:</p> <ul style="list-style-type: none"> -Conduct AWS Block 5.0 Critical Design Review to finalize design. -Conduct AWS Block 4.0 flight test in Israel. -Expand AWS-BMDS integration (with AN/TPY-2, C2BMC, and Aegis) and demonstrate performance in U.S. BMDS ground test, GTI-04 (ISR). 				
<p>Title: Arrow Missile Production Program (AMPP)</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget project WX26 of (\$24,486).</p> <p>The co-manufacturing project further enhances the Arrow Weapon System (AWS) by establishing a capability in the United States and the State of Israel to co-produce Arrow components and interceptors. The goal of the co-production effort is to accelerate</p>		<p>Articles:</p> <p>-</p> <p>0</p>	<p>12.000</p> <p>0</p>	<p>-</p> <p>0</p>

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p>production of Arrow interceptors to meet Israel's defense requirements. The current production plan will be completed in 2012 and meet Israel's Defense Forces (IDF) current inventory requirement.</p> <p>-Continue delivery of Arrow II interceptors.</p> <p>FY 2011 Plans: -Continue delivery of Arrow II interceptors.</p> <p>FY 2012 Plans: -Complete delivery of Arrow II interceptors using Israeli funding.</p>				
<p>Title: Israeli Test Bed (ITB)</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget project WX26 of (\$3,535).</p> <p>The Israeli Test Bed (ITB) is a cooperative effort conducted under the March 30, 1989 Theater Ballistic Missile Defense Test Bed Memorandum of Agreement between the U.S. and Israel. The ITB is a large scale Human-in the Loop(HIL) modeling and simulation facility for the purpose of developing, analyzing, and evaluating candidate architectures, battle management concepts, and engagement algorithms. Typically four experiments or exercises are conducted each year. Many of the exercises accomplished on the ITB include participation of U.S. and Israeli warfighters. The principal ITB facility resides at Holon, Israel. A second ITB capability is operational at the Missile Defense Agency's Advanced Research Center in Huntsville, Alabama.</p> <p>-Completed two experiments refining HIL tools for Command and Control, developing regional defense architectures, and impacts to tactics, techniques and procedures (TTPs) of the combined U.S.-Israeli Multi-tier Missile Defense Architecture. -Completed two exercises with U.S./Israeli warfighters to further refine (TTPs) and Concept of Operations (CONOPS). -Completed one ground test with U.S. BMDS elements (GTI-04b).</p> <p>FY 2011 Plans: -Conduct HIL experiment on regional defense concepts. -Conduct HIL experiment on integrated air and missile defense including integration of external sensors and battle management evaluation. -Conduct experiment on potential future architecture enhancements.</p>		<p>Articles:</p> <p>-</p> <p>0</p>	<p>3.535</p> <p>0</p>	<p>3.535</p> <p>0</p>

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
<p>-Conduct exercise with warfighters to further refine TTPs and CONOPs.</p> <p>FY 2012 Plans:</p> <p>-Conduct HIL experiment on regional defense concepts.</p> <p>-Conduct HIL experiment on affect of new mission capabilities on integrated air and missile defense.</p> <p>-Conduct experiment on potential future architecture enhancements.</p> <p>-Conduct exercise with warfighters to further refine TTPs and CONOPs.</p>				
<p>Title: Israeli Systems Architecture and Integration (ISA&I)</p> <p>Description: See Description Below</p> <p>FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget project WX26 of (\$2,771).</p> <p>The Israeli Systems Architecture and Integration (ISA&I) Study provides analysis of the future 2020 Israeli Missile Defense Architecture, growth paths for future development and interoperability with U.S. BMDS assets. Program objectives are to assess the ballistic missile threats, provide analysis and architecture options, assess missile defense system robustness and issues, and assess Israeli and U.S. missile defense interoperability issues. The ISA&I effort is contracted by MDA to an Israeli consulting firm.</p> <p>-Continued studies on emerging regional ballistic missile threats, growth path options for the Israeli Missile Defense Architecture and evaluate interoperability between U.S. and Israeli missile defense systems.</p> <p>FY 2011 Plans:</p> <p>-Development and assessment activities for regional defense, missile systems performance issues, and interoperability, special studies related to epoch up to 2020.</p> <p>FY 2012 Plans:</p> <p>-U.S.- Israeli operational exercise design and assessment, and interoperability special studies on regional threats and growth path options.</p>		<p>Articles:</p> <p>-</p> <p>0</p>	<p>2.800</p> <p>0</p>	<p>2.827</p> <p>0</p>
Accomplishments/Planned Programs Subtotals		-	24.247	11.755

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>

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

N/A

D. Acquisition Strategy

As a bi-lateral cooperative program with the State of Israel, the Arrow Program does not follow standard DoD Acquisition Practices. The DoD U.S. Israeli Cooperative Program Office jointly manages the Arrow Program with IMoD to ensure that all systems are delivered with quality on time, on budget and meet the needs of the warfighter. Program funding is equitable between the U.S. and Israel with Israel providing matching contributions. However, a portion of the Israeli cost share comes from non-financial contributions such as background information generated prior to joint program initiation. With ASIP, Israel Ministry of Defense (IMoD) contracts on behalf of U.S. government to Israel Aerospace Industries (IAI). IAI subcontracts to Israeli and U.S. companies such as Boeing. MDA Targets Office contracts for production and instrumentation of targets for flight testing conducted in the U.S. Additionally with Arrow Missile Production, IMoD contracts on behalf of U.S. government to IAI, who subcontracts to Boeing for manufacture of components in the U.S. IAI manufactures Israeli components and performs final assembly. For the Israeli Test Bed, MDA contracts directly with Tadiran while IMoD provides an equitable share of the funding to U.S. Finally, MDA contracts directly with WALES, Ltd for the Israeli System Architecture and Integration program.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>
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Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Arrow System Improvement Program Arrow System Improvement Program (ASIP) MD26	C/CPFF	Israel Aerospace Industries (IAI):Israel	41.000	5.912	Jul 2011	5.393	Jul 2012	-		5.393	0.000	52.305	11.305
Arrow Missile Production Program (AMPP) Arrow Missile Production MD26	C/FFP	Israel Aerospace Industries (IAI) & Boeing:Israel & Alabama	24.486	12.000	Oct 2010	-		-		-	0.000	36.486	12.000
Israeli Test Bed (ITB) Israeli Test Bed MD26	C/FFP	Israel Aerospace Industries (IAI) & Boeing:Israel & Alabama	3.535	3.535	Oct 2010	3.535	Oct 2011	-		3.535	0.000	10.605	7.070
Israeli Systems Architecture and Integration (ISA&I) ISA&I MD26	C/FFP	Wales LTD:Israel	2.771	2.800	Oct 2010	2.827	Oct 2011	-		2.827	0.000	8.398	5.627
Subtotal			71.792	24.247		11.755		-		11.755	0.000	107.794	36.002

Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Interoperability Tests (2Q) 2010	2	2010	2	2010
Israeli Test Bed Exercise (2Q) 2010	2	2010	2	2010
Israeli Test Bed Experiment (3Q) 2010	3	2010	3	2010
Israeli Test Bed Experiment #2 (3Q) 2010	3	2010	3	2010
GTI-04b (System Ground Test)	4	2010	4	2010
AWS Block 4.0 flight test in the U.S.	1	2011	4	2011
Target fly-out flight test in Israel FY11	1	2011	4	2011
Arrow Weapon System Block 5.0 System Requirements Review	1	2011	4	2011
Three Israeli Test Bed Experiments 2011	1	2011	3	2011
Israeli Test Bed Exercise 2011	4	2011	4	2011
Arrow Weapon System Block 5.0 Preliminary Design Review	1	2011	4	2011
GTI-04 (ISR) - ASIP event in 1QFY12	1	2012	1	2012
Three Israeli Test Bed Experiments 2012	1	2012	3	2012
Israeli Test Bed Exercise 2012	4	2012	4	2012
Arrow Weapon System Block 5.0 Critical Design Review	1	2012	4	2012
Interoperability Test 2012	1	2012	4	2012
Three Israeli Test Bed Experiments 2013	1	2013	3	2013
Israeli Test Bed Exercise 2013	4	2013	4	2013
Three Israeli Test Bed Experiment 2014	1	2014	3	2014
Israeli Test Bed Exercise 2014	4	2014	4	2014
Interoperability Test 2014	1	2014	4	2014
Three Israeli Test Bed Experiments 2015	1	2015	3	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>

Events	Start		End	
	Quarter	Year	Quarter	Year
Israeli Test Bed Exercise 2015	4	2015	4	2015
Arrow Intercept Flight Test - FY15(1)	1	2015	4	2015
Arrow Intercept Flight Test - FY15(2)	1	2015	4	2015
Three Israeli Test Bed Experiments 2016	1	2016	3	2016
Israeli Test Bed Exercise 2016	4	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX34: <i>Short Range Ballistic Missile Defense</i>	71.775	-	-	-	-	-	-	-	-	0.000	71.775
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project transferred to project MD34 in FY 2011.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2010	FY 2011	FY 2012
Title: See MD34 for FY10 Accomplishments	71.775	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	71.775	-	-

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

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>	-	46.722	41.125	-	41.125	38.316	32.549	31.771	37.175	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

This Program Element encompasses MDA's U.S.-Israeli cooperative programs. Prior to FY 2010, this program was listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C) with the project code of WX34. For FY 2010 this program was budgeted under this Program Element with a project code of WX34.

A. Mission Description and Budget Item Justification

The 2006 summer conflict between Israel and Hezbollah underscored the strategic effect of short-range, inexpensive ballistic missiles attacks on civilian populations. The current Israeli Missile Defense Architecture (comprised of Patriot and Arrow) has capability against some of these short-range missile threats, but does not provide a cost-effective defense. The goal of the Israeli Short Range Ballistic Missile Defense (SRBMD) program is to provide an affordable defense capability. In March 2005, the U.S. and Israel initiated a joint 18-month feasibility study of a low-cost SRBMD capability as a complement to the Arrow Weapon System. This was followed in May 2006 by Israeli's down-selection to the David's Sling Weapon System (DSWS) for their SRBMD solution. The system is to be developed in blocks with the initial block providing a baseline capability against large caliber rockets and short range ballistic missiles.

Under the U.S.-Israeli Project Agreement signed in September 2008, the project is jointly managed by the U.S. Missile Defense Agency and the Israeli Missile Defense Organization. The agreement documents the U.S.-Israeli cost share, in which the development costs are equitable between the U.S. and Israel with Israel providing matching contributions. However a portion of the Israeli cost share is from non-financial contributions such as background information and facilities per our international agreements.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2010	FY 2011	FY 2012
Title: SRBMD Program	-	46.722	41.125
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget project WX26 of (\$71,775).			
-Conducted one interceptor controlled navigation fly-out test to verify aerodynamic performance and control capability.			
-Conducted Critical Design Review #1 for Block 1.0.			
-Conducted initial performance analysis studies for Block 1 to assess capability to meet performance requirements.			

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
<p>-Conducted Block 1 component hardware testing to verify critical component design. -Completed negotiations on the David's Sling Weapon System project agreement.</p> <p><i>FY 2011 Plans:</i></p> <p>-Conduct Radar Field Test #1 to assess initial radar acquisition and track capability. -Conduct final Block 1 Critical Design Review. -Complete Block 1 performance analysis studies to finalize assessment of capability to meet performance requirements. -Conduct Block 2 Preliminary Design Review. -Conduct Block 2 Critical Design Review. -Conduct Block 3 Preliminary Design Review. -Conduct two interceptor controlled navigation fly-out flight tests to further verify aerodynamic performance and control capability. -Complete 9 Knowledge Point demonstrations to provide critical data to assess viability of component design.</p> <p>-6 interceptor component. -1 battle management and radar integration. -2 system performance. -Conduct Radar Field Test #2 to assess radar acquisition and track capability. -Conduct two interceptor flight tests to verify interceptor capability. -Conduct Production Readiness Review.</p> <p><i>FY 2012 Plans:</i></p> <p>-Conduct two system interception tests -Complete 4 Knowledge Points to provide critical data to assess viability of subsystem and system design and interception cost.</p> <p>-3 system performance. -1 interceptor unit cost. -Conduct Radar Field Test #3 to assess radar acquisition and track capability.</p>			
Accomplishments/Planned Programs Subtotals	-	46.722	41.125

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>

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

N/A

D. Acquisition Strategy

As a bi-lateral cooperative program with the State of Israel, the SRBMD program does not follow standard DoD Acquisition Practices. The DoD U.S. Israeli Cooperative Program Office jointly manages the SRBMD program with IMoD to ensure that all systems are delivered with on time, on budget and meet the needs of the warfighter. The SRBMD Project Agreement allows Israel to contract on behalf of the United States. For the Stunner Interceptor, Rafael, an Israeli company, subcontracts to Raytheon Missile Systems for certain interceptor components.

E. Performance Metrics

NA

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SRBMD Program SRBMD Program MD34	C/CPFF	Rafael:Israel	71.775	46.722	Jan 2011	41.125	Jan 2012	-		41.125	0.000	159.622	87.847
Subtotal			71.775	46.722		41.125		-		41.125	0.000	159.622	87.847

Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Management Services (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

			Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			71.775	46.722		41.125		-		41.125	0.000	159.622	87.847

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Stunner Interceptor Fly-out #1.1	3	2010	3	2010
David's Sling Weapon System Block 1.0 Critical Design Review (V1A)	4	2010	4	2010
Radar Field Test #1 2010	4	2010	4	2010
Block 1, V1B Critical Design Review	1	2011	4	2011
Stunner Interceptor Fly-out #1.2 2011	1	2011	4	2011
Stunner Interceptor Fly-out #2 2011	1	2011	4	2011
Block 2.0 Preliminary Design Review	1	2011	4	2011
Block 1, V2 Critical Design Review	1	2011	4	2011
Interceptor Flight Test 2011 #1	1	2011	4	2011
Interceptor Fly-out Test 2Q2011	2	2011	2	2011
Interceptor Flight Test 2011 #2	1	2011	4	2011
Radar Field Test 2011	1	2011	4	2011
Block 3 Preliminary Design Review	1	2011	4	2011
Production Readiness Review	1	2011	4	2011
System Flight Test #3 2012	1	2012	4	2012
Block 1, V3 Critical Design Review	1	2012	4	2012
Radar Field Test #3 2012	1	2012	4	2012
System Flight Test #4 2012	1	2012	4	2012
Block 2 Critical Design Review	1	2012	4	2012
System Flight Test #5 2013	1	2013	4	2013
System Flight Test #6 2013	1	2013	4	2013
Block 3 Critical Design Review	1	2013	4	2013

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>

Events	Start		End	
	Quarter	Year	Quarter	Year
System Flight Test #7 2013	1	2013	4	2013
System Flight Test #8 2014	1	2014	4	2014
System Flight Test #9 2015	1	2015	4	2015
System Flight Test #10 2015	1	2015	4	2015