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Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Missile Defense Agency **DATE:** April 2013

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 Programs</i>
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COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	371.799	235.655	99.836	95.782	-	95.782	96.803	103.940	106.020	107.929	Continuing	Continuing
MD20: <i>Israeli Upper Tier</i>	109.984	66.220	50.892	52.607	-	52.607	54.368	55.660	56.773	57.795	Continuing	Continuing
MD26: <i>Israeli ARROW Program</i>	105.268	58.910	10.665	10.663	-	10.663	10.701	11.142	11.365	11.570	Continuing	Continuing
MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>	156.547	110.525	38.279	32.512	-	32.512	31.734	37.138	37.882	38.564	Continuing	Continuing

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

Note

Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.

Content supports expected contributions from Israel per international agreements.

A. Mission Description and Budget Item Justification

Since 1986, the United States and the State of Israel have cooperated on missile defense. Currently Missile Defense Agency (MDA) has three major projects 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 the Arrow-3 Interceptor. Within these projects MDA develops and produces weapon systems, conducts tests, and exercises interoperability between U.S. BMDS and the Israeli Missile Defense Architecture.

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

Israeli Upper Tier Project:

The Upper Tier Program provides the Arrow 3 missile, increasing the system's capability against advanced medium range threats by providing approximately four times the current Arrow-2 battle space. The primary near term objective for Upper Tier is to demonstrate readiness for a Low Rate Initial Production (LRIP) delivery in FY 2016 through successful flight testing.

Israeli Arrow Weapon System (AWS):

The Arrow System Improvement Program (ASIP) includes block upgrades to the Arrow Weapon System that enhances capabilities against more stressing evolving medium range threats by increasing the total defended area by approximately 50 percent. ASIP elements include the Arrow-2 missile and launcher, Citron Tree Battle Management Center (BMC), Green Pine (GP) and Super Green Pin (SGP) Radars, and the Hazelnut Tree Launcher Control Center (LCC). Also included is the integration of Block 5 assets which include the Arrow-3 missile and launcher. Arrow Block 5, under the ASIP agreement will also incorporate a Long Range Detection

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suite that consists of an unmanned aerial vehicle Airborne Early Warning System (ABEWS) and a S-Band Silver Oak radar for increased sensor range, early detection and enhanced raid size capacity. The program also includes the continued development of Arrow's interoperability with U.S. Ballistic Missile Defense Systems (BMDS). 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 2025 Israel Missile Defense Architecture.

Short Range Ballistic Missile Defense (SRBMD):

SRBMD, also known as The David's Sling Weapon System (DSWS), is designed to counter short range rockets and missiles and serve to fill the lower-tier gap between the Arrow Weapon System and Iron Dome. The first fielded block capability will perform the short range rocket and missile defense mission. Subsequent blocks will address a cruise missile defense capability. David's Sling Weapon System (DSWS) elements include the Stunner Interceptor, Missile Firing Unit (MFU), Multi-Mission Radar (MMR), and the Golden Almond Battle Management Center (BMC). The main near term objectives for DSWS are successful completion of Low Rate Initial Production (LRIP) in FY 2014, initiation of Interceptor Full Rate Production (FRP), and completion of final Block 1 flight testing.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014 Base</u>	<u>FY 2014 OCO</u>	<u>FY 2014 Total</u>
Previous President's Budget	235.700	99.836	95.782	-	95.782
Current President's Budget	235.655	99.836	95.782	-	95.782
Total Adjustments	-0.045	0.000	0.000	-	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-0.045	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustment	0.000	0.000	0.000	-	0.000

Change Summary Explanation

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Missile Defense Agency **DATE:** April 2013

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 Programs</i>	PROJECT MD20: <i>Israeli Upper Tier</i>
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COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
MD20: <i>Israeli Upper Tier</i>	109.984	66.220	50.892	52.607	-	52.607	54.368	55.660	56.773	57.795	Continuing	Continuing
Quantity of RDT&E Articles		0	0	0		0	0	0	0	0		

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012
^{##} The FY 2014 OCO Request will be submitted at a later date

Note
 This project code encompasses the Missile Defense Agency's (MDA) U.S.-Israeli cooperative program for the Israeli Upper Tier Program.

Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.

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 enhance Israel's indigenous capability to defend against short and medium range ballistic missiles by increasing the battle space by a factor of four. The scope of the Upper Tier Program covers interceptor development, testing, initial lot production, and integration with the Block 5 AWS. The United States through the cooperative effort gains knowledge and experience of the Israeli Defense Forces operation of a multi-layered defense architecture. This project also includes the development of the Silver Sparrow Air-Launched Target which is necessary to validate the performance of the Arrow 3 Missile.

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.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Upper Tier	66.220	50.892	52.607
Articles:	0	0	0
Description: N/A			
FY 2012 Accomplishments:			
-Conducted 2 Element Level Knowledge Point demonstrations to provide critical data to assess viability of component design.			
-Conducted Software Critical Design Review for Fly Out Number 1.			
-Conducted preparation activities for Arrow 3 Fly Out Number 1.			
-Demonstrated seeker functional capability and system performance.			

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
<p>-Performed Static Fire Test for Booster and Kill Vehicle. -Conducted Long Range Target Wind Tunnel Test.</p> <p>The following activity moved from FY2012 to FY2013: -Conduct first fly out test of the Arrow 3 interceptor</p> <p>FY 2013 Plans: -Conduct 2 Element Level Knowledge Point demonstrations to provide critical data to assess viability of component design. -Conduct second interceptor fly-out test of the Arrow-3 Interceptor. -Complete data reduction and analysis for the second interceptor fly-out test of the Arrow-3 Interceptor. -Conduct algorithm design review for Intercept Test #1 to verify requirements. -Conduct Long Range Target fly out for validation. -Complete Production Readiness Review for Initial Lot Production.</p> <p>FY 2014 Plans: -Conduct Arrow 3 Interceptor Fly-Out Test Number 2 -Conduct algorithm design review for Intercept Test Number 1 to verify requirements. -Conduct Hardware in the Loop (HWIL) testing to demonstrate electronic optical seeker Knowledge Points. -Conduct lab testing to demonstrate discrimination Knowledge Points. -Conduct preparation activities for Arrow 3 Intercept Test Number 1 -Conduct Arrow-3 Component Production Readiness reviews for Initial Lot Production.</p>			
Accomplishments/Planned Programs Subtotals	66.220	50.892	52.607

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

N/A

Remarks

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 Research, Development, Test and Evaluation (RDT&E) Framework agreement between the U.S. and Israel creates a joint program office to manage this program. Missile Defense Agency (MDA) and the Israeli Ministry of Defense (IMoD) continue to implement management practices that allow for the more effective use of program management tools to ensure risk is adequately managed to include Knowledge Points that assess Israel's development progress. The

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<p>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. The program is equitably funded between the U.S. and Israel. A portion of the Israeli cost share comes from non-financial contributions such as previously completed work prior to joint program initiation. In regard to the Upper Tier Interceptor, IMoD will contract with Israel Aerospace Industries (IAI). IAI subcontracts with Israeli and U.S. companies.</p>		
<p>E. Performance Metrics Earned Value Management System (EVMS)</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Missile Defense Agency **DATE:** April 2013

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 Programs</i>	PROJECT MD20: <i>Israeli Upper Tier</i>
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Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Upper Tier - Upper Tier	C/CPFF	Israel Aerospace Industries (IAI):Israel	109.984	66.220		50.892	Dec 2012	52.607	Dec 2013	-		52.607	Continuing	Continuing	Continuing
Subtotal			109.984	66.220		50.892		52.607		0.000		52.607			

Remarks
N/A

Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks
N/A

Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks
N/A

Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000

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Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
N/A

	All Prior Years	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	109.984	66.220	50.892	52.607	0.000	52.607			

Remarks
Contract cost reflect U.S. contribution only. Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Missile Defense Agency **DATE:** April 2013

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Significant Event Complete ▲ Milestone Decision Complete ★ Element Test Complete ◆ System Level Test Complete ● Complete Activity ✦
 Significant Event Planned △ Milestone Decision Planned ☆ Element Test Planned ◇ System Level Test Planned ○ Planned Activity ✧

	FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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
Arrow-3 Software Critical Design Review (CDR) for Fly Out Number 1	✦	✦	✦	✦																								
Preparation activities for Arrow 3 Fly Out Number 1	✦	✦	✦	✦																								
Israeli Cooperative Intercept Flight Test - FY 2013					✧	✧	✧	✧																				
Complete Data Reduction and Analysis of Fly-Out					✧	✧	✧	✧																				
Arrow-3 Production Readiness Review (PRR)					✧	✧	✧	✧																				
Conduct Hardware in the Loop (HWIL) Testing									✧	✧	✧	✧																
Arrow-3 Component Production Readiness Reviews for Initial Lot Production									✧	✧	✧	✧																
Israeli Cooperative Arrow 3 Interceptor Flight Test Number 2 - FY 2014									✧	✧	✧	✧																
Israeli Cooperative Arrow 3 Intercept Test Number 1- FY 2015													✧	✧	✧	✧												
Israeli Cooperative Arrow 3 Intercept Test Number 2- FY 2016																	✧	✧	✧	✧								
Israeli Cooperative Arrow 3 Intercept Test Number 3- FY 2017																					✧	✧	✧	✧				
Israeli Cooperative Arrow 3 Intercept Test Number 4- FY 2018																									✧	✧	✧	✧

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Missile Defense Agency		DATE: April 2013
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Arrow-3 Software Critical Design Review (CDR) for Fly Out Number 1	1	2012	4	2012
Preparation activities for Arrow 3 Fly Out Number 1	1	2012	4	2012
Israeli Cooperative Intercept Flight Test - FY 2013	1	2013	4	2013
Complete Data Reduction and Analysis of Fly-Out	1	2013	4	2013
Arrow-3 Production Readiness Review (PRR)	1	2013	4	2013
Conduct Hardware in the Loop (HWIL) Testing	1	2014	4	2014
Arrow-3 Component Production Readiness Reviews for Initial Lot Production	1	2014	4	2014
Israeli Cooperative Arrow 3 Interceptor Flight Test Number 2 - FY 2014	1	2014	4	2014
Israeli Cooperative Arrow 3 Intercept Test Number 1- FY 2015	1	2015	4	2015
Israeli Cooperative Arrow 3 Intercept Test Number 2- FY 2016	1	2016	4	2016
Israeli Cooperative Arrow 3 Intercept Test Number 3- FY 2017	1	2017	4	2017
Israeli Cooperative Arrow 3 Intercept Test Number 4- FY 2018	1	2018	4	2018

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COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
MD26: <i>Israeli ARROW Program</i>	105.268	58.910	10.665	10.663	-	10.663	10.701	11.142	11.365	11.570	Continuing	Continuing
Quantity of RDT&E Articles		0	0	0		0	0	0	0	0		

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

Note

Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.

A. Mission Description and Budget Item Justification

This project includes funding for the Arrow Weapon Improvement System (ASIP), Israeli Test Bed (ITB) and the Israeli Systems Architecture and Integration (ISI&A).

The Arrow Weapon System (AWS) continues development of Block 4. Also included is the integration of Block 5 assets which consists of the Arrow-3 missile, launcher and the Long Range Detection Suite (LRDS). The LRDS consists of an unmanned aerial vehicle Airborne Early Warning System (ABEWS) and an S-Band Silver Oak radar for increased sensor range and early detection and enhanced salvo engagement capability. 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. ASIP elements include the Arrow-2 missile and launcher, Citron Tree Battle Management Center (BMC), Green Pine (GP) and Super Green Pine (SGP) Radars, and the Hazelnut Tree Launcher Control Center (LCC). The ASIP also ensures AWS interoperability via Joint Tactical Information Data System (JTIDS) Link-16 common communication architecture with the U.S. BMDs elements such as Terminal High Altitude Area Defense (THAAD), AEGIS, Command, Control, Battle Management and Communications (C2BMC), Army Navy/Transportable Radar Surveillance and Control (AN/TPY-2), and Phased Array Tracking Intercept of Target (PATRIOT) through ground tests, flight tests, and operational exercises.

The Israeli Test Bed (ITB) provides experiments to evaluate Human-In-The-Loop (HIL) battle management. Israeli Systems Architecture and Integration (ISA&I) conducts studies to assess Israel's future 2025 Missile Defense Architecture. The ITB and ISA&I efforts will continue to support AWS development as well as to define future missile defense architectures and growth paths.

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

	FY 2012	FY 2013	FY 2014
Title: Arrow System Improvement Program	52.548	4.303	4.301
Articles:	0	0	0
Description: N/A			
FY 2012 Accomplishments: -Conducted Block 5 Battle Management Center Systems Requirements Review.			

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Missile Defense Agency		DATE: April 2013		
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 Programs</i>		PROJECT MD26: <i>Israeli ARROW Program</i>
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)				FY 2012
<ul style="list-style-type: none"> -Conducted Long Range Detection Suites (Airborne Early Warning System) Preliminary Design Review. -Conducted Arrow Weapon System (AWS) Block 4.0 flight test in Israel. -Conducted AWS Block 4 Initial Operations Capability Validation. -Expanded AWS-Ballistic Missile Defense System (BMDS) integration (with Command, Control, Battle Management and Communications (C2BMC), Army Navy/Transportable Radar Surveillance and Control (AN/TPY-2), and Aegis) and demonstrated performance in U.S. BMDS ground test, GTI-04 (Ground Test with Hardware in the Loop) Israel (ISR). -Developed/Finalized Version 2 Software-Adds Seeker Capability. -Completed Software development for Tactical Debriefing Center (TDC). <p>FY 2013 Plans:</p> <ul style="list-style-type: none"> -Complete data reduction and analysis for the intercept flight test in Israel to validate models and simulations. -Conduct interoperability ground test with U.S. BMDS. <p>FY 2014 Plans:</p> <ul style="list-style-type: none"> -Conduct interoperability ground test with U.S. Ballistic Missile Defense System (BMDS) to verify data link operations with new software builds for US and Israeli systems. -Conduct Intercept Test with Older and Newer variant of Arrow 2. 				FY 2013
				FY 2014
<p>Title: Israeli Test Bed (ITB)</p> <p align="right">Articles:</p> <p>Description: N/A</p> <p>FY 2012 Accomplishments:</p> <ul style="list-style-type: none"> -Conducted Human in the Loop (HIL) experiment on interoperability missile defense concepts. -Conducted HIL experiment on affect of new mission capabilities on integrated air and missile defense. -Conducted experiment on potential future architecture enhancements. -Conducted exercise with warfighters to further refine Techniques, Tactics and Procedures (TTPs) and Concept of Operations (CONOPs). <p>FY 2013 Plans:</p> <ul style="list-style-type: none"> -Conduct HIL experiment on regional defense concepts. -Conduct HIL experiment Arrow 2/3 and related Block 5 Integration including integration of external sensors and battle management. <p>FY 2014 Plans:</p> <ul style="list-style-type: none"> -Conduct HIL experiment with warfighters to further define Techniques, Tactics and Procedures (TTPs) and CONOPS 				3.535
				0
				3.535
				0
				3.535
				0

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2012	FY 2013	FY 2014
-Conduct exercise with warfighters to further refine TTPs and Concept of Operations (CONOPs).				
Title: Israeli Systems Architecture and Integration (ISA&I)		2.827	2.827	2.827
Description: N/A		0	0	0
Articles:				
FY 2012 Accomplishments: -Conducted U.S. - Israeli operational exercise design and assessment, and interoperability special studies on regional threats and growth path options.				
FY 2013 Plans: -U.S. - Israeli operational exercise design and assessment, and interoperability special studies on regional threats and growth path options.				
FY 2014 Plans: -Conduct U.S. Israeli operational exercise design and assessment, and interoperability special studies on regional threats and growth path options.				
Accomplishments/Planned Programs Subtotals		58.910	10.665	10.663
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
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 Israel Ministry of Defense (IMoD) to ensure that all systems are delivered with quality on time, on budget, and meet the needs of the warfighter. The program funding is equitably funded 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 previously completed work prior to joint program initiation. In regard to Arrow System Improvement Program (ASIP), IMoD contracts on behalf of U.S. government with Israel Aerospace Industries (IAI). IAI subcontracts with Israeli and U.S. companies. For the Israeli Test Bed, the Missile Defense Agency (MDA) contracts directly with Elbit Systems, Ltd. while IMoD provides an equitable share of the funding to the U.S. Finally, MDA contracts directly with WALES, Ltd for the Israeli System Architecture and Integration program.				
E. Performance Metrics				
N/A				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Missile Defense Agency **DATE:** April 2013

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 Programs</i>	PROJECT MD26: <i>Israeli ARROW Program</i>
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Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	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)	C/CPFF	Israel Aerospace Industries (IAI):Israel	88.912	52.548		4.303	Dec 2012	4.301	Dec 2013	-		4.301	Continuing	Continuing	Continuing
Israeli Test Bed (ITB) - Israeli Test Bed	C/FFP	Elbit Systems:Israel	10.605	3.535		3.535	Oct 2012	3.535	Oct 2013	-		3.535	Continuing	Continuing	Continuing
Israeli Systems Architecture and Integration (ISA&I) - ISA&I	C/FFP	Wales LTD:Israel	5.751	2.827		2.827	Oct 2012	2.827	Oct 2013	-		2.827	Continuing	Continuing	Continuing
Subtotal			105.268	58.910		10.665		10.663		0.000		10.663			

Remarks
N/A

Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	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		0.000		0.000		0.000	0.000	0.000	0.000

Remarks
N/A

Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	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		0.000		0.000		0.000	0.000	0.000	0.000

Remarks
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Missile Defense Agency **DATE:** April 2013

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 Programs</i>	PROJECT MD26: <i>Israeli ARROW Program</i>
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Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks
N/A

	All Prior Years	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	105.268	58.910	10.665	10.663	0.000	10.663			

Remarks
Contract cost reflect U.S. contribution only.

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Missile Defense Agency **DATE:** April 2013

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 Programs</i>	PROJECT MD26: <i>Israeli ARROW Program</i>
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Significant Event Complete ▲ Milestone Decision Complete ★ Element Test Complete ◆ System Level Test Complete ● Complete Activity +
 Significant Event Planned △ Milestone Decision Planned ☆ Element Test Planned ◇ System Level Test Planned ○ Planned Activity +

	FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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
Israeli Test Bed Exercise FY 2012	+	+	+	+																								
GTI-04 (Israel) - Arrow System Improvement Program event in FY 2012	+	+	+	+																								
Three Israeli Test Bed Experiments FY 2012	+	+	+	+																								
Arrow Weapon System Block 4.0 Flight Test FY 2012	+	+	+	+																								
Three Israeli Test Bed Experiments FY 2013					+	+	+	+																				
Israeli Test Bed Exercise FY 2013					+	+	+	+																				
Interoperability Ground Test (GT) Test FY 2014									+	+	+	+																
Intercept Test with Older and Newer Variants of Arrow 2									+	+	+	+																
Israeli Test Bed Exercise with Warfighter									+	+	+	+																
Israeli Test Bed Human in the Loop Experiment with Warfighter									+	+	+	+																
Israeli Test Bed Exercise to include GT Support FY 2015													+	+	+	+												
Israeli Test Bed Experiments FY 2015													+	+	+	+												
Israeli Test Bed Experiments FY 2016																	+	+	+	+								
Israeli Test Bed Exercise to include GT Support FY 2016																	+	+	+	+								
Israeli Test Bed Experiments FY 2017																					+	+	+	+				
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2017																					+	+	+	+				

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Missile Defense Agency		DATE: April 2013
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 Programs</i>	PROJECT MD26: <i>Israeli ARROW Program</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Israeli Test Bed Exercise FY 2012	1	2012	4	2012
GTI-04 (Israel) - Arrow System Improvement Program event in FY 2012	1	2012	4	2012
Three Israeli Test Bed Experiments FY 2012	1	2012	4	2012
Arrow Weapon System Block 4.0 Flight Test FY 2012	1	2012	4	2012
Three Israeli Test Bed Experiments FY 2013	1	2013	4	2013
Israeli Test Bed Exercise FY 2013	1	2013	4	2013
Interoperability Ground Test (GT) Test FY 2014	1	2014	4	2014
Interecept Test with Older and Newer Variants of Arrow 2	1	2014	4	2014
Israeli Test Bed Exercise with Warfighter	1	2014	4	2014
Israeli Test Bed Human in the Loop Experiment with Warfighter	1	2014	4	2014
Israeli Test Bed Exercise to include GT Support FY 2015	1	2015	4	2015
Israeli Test Bed Experiments FY 2015	1	2015	4	2015
Israeli Test Bed Experiments FY 2016	1	2016	4	2016
Israeli Test Bed Exercise to include GT Support FY 2016	1	2016	4	2016
Israeli Test Bed Experiments FY 2017	1	2017	4	2017
Israeli Test Bed Exercise to include Ground Test (GT) Support FY 2017	1	2017	4	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Missile Defense Agency **DATE:** April 2013

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 Programs</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>	156.547	110.525	38.279	32.512	-	32.512	31.734	37.138	37.882	38.564	Continuing	Continuing
Quantity of RDT&E Articles		0	0	0		0	0	0	0	0		

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

Note

Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.

A. Mission Description and Budget Item Justification

The 2006 summer conflict between Israel and Hezbollah underscored the strategic effect of short-range, inexpensive ballistic missile attacks on civilian populations. The current Israeli Missile Defense Architecture 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 the Israeli's down-selection to the David's Sling Weapon System (DSWS) for their SRBMD solution. Under the current Program Agreement, Block 1 provides a baseline capability against large caliber rockets and short range ballistic missiles. The DSWS is comprised of the Stunner Interceptor, Battle Management Center the Multi-Mission Radar, and the Missile Firing Unit.

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 equitably shared between the U.S. and Israel.

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

	FY 2012	FY 2013	FY 2014
Title: SRBMD Program	110.525	38.279	32.512
Articles:	0	0	0
Description: N/A			
FY 2012 Accomplishments:			
-Conducted Safe Separation Test 1.1 with production representative canister.			
-Conducted preparation activities for one Block One System Interception Test.			
-Conducted preparation activities for one Block One System Fly-by Test.			
-Completed 3 Knowledge Points to provide critical data to assess viability of subsystem and system designs.			

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Missile Defense Agency		DATE: April 2013		
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 Programs</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2012	FY 2013	FY 2014
<ul style="list-style-type: none"> -Conducted Lower Tier Battle Management Center development System Requirements Review (SRR) and Preliminary Design Review (PDR). -Initiated Block 2 development efforts through System Requirements Review. -Initiated Procurement of Long Lead Items for Initial Lot Production. -Conducted Seeker Critical Design Review. -Conducted Electro Optical Seeker hardware and software testing in a closed and open loop. -Finalized initial Stunner flight control algorithms for Block One. -Conducted Radar Field Test #2 to assess radar acquisition and track capability. <p>The following activities moved out from FY 2012 to FY 2013:</p> <ul style="list-style-type: none"> - Conducted Block One System Interception Test and Block One System Fly-by test - Conduct System Production Readiness Review (PRR) - Conduct Radar Field Test #3 <p>FY 2013 Plans:</p> <ul style="list-style-type: none"> -Complete data analysis of intercept test to validate Block 1 functionality. -Complete 2 Knowledge Points which provide critical data to assess viability of subsystem and system design and intercept cost. -Complete Block 2 Critical Design Review which expands the DSWS threat set. -Continue Block 3 Development which enables the engagement of an expanded threat set and expands the battle space by 300 percent. -Evaluate Field Test #3 against model and simulation expectations and Technical Performance Measurements. <p>FY 2014 Plans:</p> <ul style="list-style-type: none"> - Conduct ground test and simulations to validate missile and system performance to complete 3 Knowledge points and provide data to assess subsystem and system design robustness. - Conduct 1 Block One system intercept test with production representative interceptor to validate the Block 1 system performance. - Complete DSWS Initial Lot Production (ILP) deliveries. - Complete Initial Lot Production (ILP) delivery of first Battle Management Center. 				
Accomplishments/Planned Programs Subtotals		110.525	38.279	32.512
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Missile Defense Agency		DATE: April 2013
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 Programs</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>

D. Acquisition Strategy

As a bi-lateral cooperative program with the State of Israel, the Short Range Ballistic Missile Defense (SRBMD) program does not follow standard DoD Acquisition Practices. The DoD U.S. Israeli Cooperative Program Office jointly manages the SRBMD program with Israel Ministry of Defense (IMoD) to ensure that all systems are delivered on time, on budget, and meet the needs of the warfighter. The David's Sling Weapon System (DSWS) Project Agreement requires Israel to contract for the system. For the Stunner Interceptor, Rafael advanced Systems (an Israeli company), subcontracts to Raytheon Missile Systems for certain interceptor components.

E. Performance Metrics

Earned Value Management System (EVMS)

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Missile Defense Agency **DATE:** April 2013

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 Programs</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SRBMD Program - SRBMD Program	C/CPFF	Rafael:Israel	156.547	110.525		38.279	Dec 2012	32.512	Dec 2013	-		32.512	Continuing	Continuing	Continuing
Subtotal			156.547	110.525		38.279		32.512		0.000		32.512			

Remarks
N/A

Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks
N/A

Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000

Remarks
N/A

Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Missile Defense Agency **DATE:** April 2013

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 Programs</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
N/A

	All Prior Years	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	156.547	110.525	38.279	32.512	0.000	32.512			

Remarks
Contract cost reflect U.S. contribution only.

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Missile Defense Agency **DATE:** April 2013

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 Programs</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
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Significant Event Complete ▲ Milestone Decision Complete ★ Element Test Complete ◆ System Level Test Complete ● Complete Activity ✦
 Significant Event Planned △ Milestone Decision Planned ☆ Element Test Planned ◇ System Level Test Planned ○ Planned Activity ✧

	FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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
Preparation Activities for Block One System Fly-by Test	✦	✦	✦	✦																								
Preparation Activities for Block One System Intercept Test	✦	✦	✦	✦																								
Radar Field Test #2 FY 2012	✦	✦	✦	✦																								
System Flight Test #3 FY 2013					✧	✧	✧	✧																				
System Flight Test #4 FY 2013					✧	✧	✧	✧																				
Block 2.0 Critical Design Review					✧	✧	✧	✧																				
System Flight Test #5 FY 2014									✧	✧	✧	✧																
System Flight Test #6 FY 2015													✧	✧	✧	✧												
System Flight Test #7 FY 2016																	✧	✧	✧	✧								
System Flight Test #8 FY 2017																					✧	✧	✧	✧				
System Flight Test #9 FY 2018																									✧	✧	✧	✧

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Missile Defense Agency		DATE: April 2013
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 Programs</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Preparation Activities for Block One System Fly-by Test	1	2012	4	2012
Preparation Activities for Block One System Intercept Test	1	2012	4	2012
Radar Field Test #2 FY 2012	1	2012	4	2012
System Flight Test #3 FY 2013	1	2013	4	2013
System Flight Test #4 FY 2013	1	2013	4	2013
Block 2.0 Critical Design Review	1	2013	4	2013
System Flight Test #5 FY 2014	1	2014	4	2014
System Flight Test #6 FY 2015	1	2015	4	2015
System Flight Test #7 FY 2016	1	2016	4	2016
System Flight Test #8 FY 2017	1	2017	4	2017
System Flight Test #9 FY 2018	1	2018	4	2018