

**UNCLASSIFIED**

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
0400: Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)					PE 0604673C I Pacific Discriminating Radar							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	59.564	15.926	6.711	-	6.711	59.800	53.444	279.349	398.573	0.000	873.367
MD41: Homeland Defense Radar - Hawaii (HDR-H)	-	59.564	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	59.564
MD40: Program Wide Support	-	0.000	0.000	1.555	-	1.555	2.839	15.716	15.859	13.619	0.000	49.588
MD51: Pacific Radar (PAC Radar)	-	0.000	15.926	5.156	-	5.156	56.961	37.728	263.490	384.954	0.000	764.215
Program MDAP/MAIS Code: 362												
Note												
Homeland Defense Radar - Hawaii (HDR-H) funding was appropriated/budgeted as follows: FY 2017: PE 0603884C BMDS Sensors, Project MD41 FY 2018: PE 0604673C Pacific Discriminating Radar, Project MD41 FY 2019: PE 0604672C Homeland Defense Radar Hawaii, Project MD41.												
Decrease in FY 2020 reflects a delay in PAC Radar initial fielding by two years from FY 2024 to FY 2026.												
A. Mission Description and Budget Item Justification												
The Pacific Discriminating Radar Program Element is comprised of the PAC Radar program, a persistent discrimination sensor for the Ballistic Missile Defense System (BMDS). PAC Radar addresses USNORTHCOM and USINDOPACOM operational requirements for a near term persistent solution against advancing threats and closes capability gaps throughout the Pacific region. PAC Radar provides 24/7 persistent tracking and discrimination capability against Homeland and Regional threats within an increasingly complex countermeasure environment, improves capability of Ballistic Missile Defense (BMD) interceptors and supports multi-mission areas (e.g., Space Situational Awareness & Intelligence Collection). The radar will leverage development efforts from other sensor projects to enhance discrimination, tracking, and hit assessment to maximize interceptor usage.												

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2020 Missile Defense Agency	<b>Date:</b> March 2019
---	-------------------------

<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604673C I <i>Pacific Discriminating Radar</i>
---	---

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
Previous President's Budget	0.000	95.765	164.167	-	164.167
Current President's Budget	59.564	15.926	6.711	-	6.711
Total Adjustments	59.564	-79.839	-157.456	-	-157.456
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-22.618			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	61.000	-57.221			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.436	0.000			
• Missile Defeat and Defense Enhancement	0.000	0.000	0.000	-	0.000
• Other Adjustment	0.000	0.000	-157.456	-	-157.456

**Change Summary Explanation**

Decrease in FY 2019 from PB19 to PB20 reflects congressional transfer of Homeland Defense Radar - Hawaii (HDR-H) Budget Project MD41 from this PE to the new HDR-H PE 0604672C, and congressional adjustment --early to need.

Decrease in FY 2020 from PB19 to PB20 reflects the transfer of Homeland Defense Radar - Hawaii (HDR-H) (MD41) from this PE to the new HDR-H PE 0604672C and a delay in PAC Radar initial fielding by two years from FY 2024 to FY 2026.

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604673C / Pacific Discriminating Radar				Project (Number/Name) MD41 / Homeland Defense Radar - Hawaii (HDR-H)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD41: Homeland Defense Radar - Hawaii (HDR-H)	-	59.564	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	59.564
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note HDRH funding was appropriated/budgeted as follows: FY 2017: PE 0603884C BMDS Sensors, Project MD41 FY 2018: PE 0604673C Pacific Discriminating Radar, Project MD41 FY 2019: PE 0604672C Homeland Defense Radar Hawaii, Project MD41.												
A. Mission Description and Budget Item Justification Details are contained in PE 0604672C: Homeland Defense Radar-Hawaii.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2018	FY 2019	FY 2020	
Title: Homeland Defense Radar - Hawaii  Articles:  Description: Details are contained in PE 0604672C: Homeland Defense Radar-Hawaii.  FY 2019 Plans: - N/A  FY 2020 Plans: - N/A  FY 2019 to FY 2020 Increase/Decrease Statement: N/A									59.564	0.000	0.000	
									-	-	-	
Accomplishments/Planned Programs Subtotals									59.564	0.000	0.000	

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Missile Defense Agency								<b>Date:</b> March 2019			
<b>Appropriation/Budget Activity</b> 0400 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0604673C / <i>Pacific Discriminating Radar</i>				<b>Project (Number/Name)</b> MD41 / <i>Homeland Defense Radar - Hawaii (HDR-H)</i>			

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

<b>Line Item</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i>	1,153.263	803.359	1,156.506	-	1,156.506	829.451	766.237	834.533	776.671	Continuing	Continuing
• 0603884C: <i>SENSORS MILCON</i>	0.000	174.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	174.000
• 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i>	449.985	507.817	564.206	-	564.206	534.988	502.581	525.742	535.636	Continuing	Continuing
• 0604672C: <i>Homeland Defense Radar - Hawaii - IDT</i>	0.000	0.000	0.000	-	0.000	89.710	0.000	0.000	0.000	0.000	89.710
• 0604672C: <i>Homeland Defense Radar - Hawaii - MILCON</i>	0.000	0.000	0.000	-	0.000	138.000	183.000	0.000	0.000	0.000	321.000
• 0604672C: <i>Homeland Defense Radar-Hawaii</i>	0.000	62.221	274.714	-	274.714	210.614	135.627	87.773	40.772	0.000	811.721
• 0604673C: <i>Pacific Discriminating Radar</i>	59.564	15.926	6.711	-	6.711	59.800	53.444	279.349	398.573	0.000	873.367
• 0604673C: <i>Pacific Discriminating Radar - MILCON</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	365.970	0.000	365.970
• 0604873C: <i>Long Range Discrimination Radar (LRDR)</i>	370.516	166.543	136.423	-	136.423	122.877	99.920	88.203	64.569	Continuing	Continuing
• 0604879C: <i>Ballistic Missile Defense Sensor Test</i>	88.840	77.405	105.530	-	105.530	114.698	99.088	112.943	96.526	Continuing	Continuing
• 31299903: <i>MILCON PLANNING and DESIGN</i>	0.000	6.184	35.472	-	35.472	20.848	30.185	42.000	19.543	0.000	154.232

**Remarks**

**D. Acquisition Strategy**

Details are contained in PE 0604672C: Homeland Defense Radar-Hawaii.

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0604673C / Pacific Discriminating Radar				Project (Number/Name) MD41 / Homeland Defense Radar - Hawaii (HDR-H)					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Homeland Defense Radar - Hawaii - Communications Integration	SS/CPIF	Lockheed Martin : AL	0.000	16.100	Sep 2018	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Homeland Defense Radar - Hawaii - IV&V	MIPR	TBD : TBD	0.000	3.173	Sep 2018	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Homeland Defense Radar - Hawaii - Prime Contractor	C/TBD	TBD : TBD	0.000	31.264	Sep 2018	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Homeland Defense Radar - Hawaii - Program Office	Various	MDA : AL	0.000	6.627	Sep 2018	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Homeland Defense Radar - Hawaii - Site Activation & Studies	C/TBD	TBD : TBD	0.000	2.400	Sep 2018	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			0.000	59.564		0.000		0.000		-		0.000	Continuing	Continuing	N/A
Remarks N/A															
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	59.564		0.000		0.000		-		0.000	Continuing	Continuing	N/A
Remarks Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency							Date: March 2019										
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0604673C / Pacific Discriminating Radar				Project (Number/Name) MD41 / Homeland Defense Radar - Hawaii (HDR-H)									
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 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024	
Homeland Defense Radar - Hawaii (HDR-H)				◆◆													

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Missile Defense Agency			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604673C / <i>Pacific Discriminating Radar</i>	<b>Project (Number/Name)</b> MD41 / <i>Homeland Defense Radar - Hawaii (HDR-H)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Homeland Defense Radar - Hawaii (HDR-H)	3	2018	4	2018

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604673C / Pacific Discriminating Radar				Project (Number/Name) MD40 / Program Wide Support			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD40: Program Wide Support	-	0.000	0.000	1.555	-	1.555	2.839	15.716	15.859	13.619	0.000	49.588
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Beginning in FY 2020, Program Wide Support (PWS) was proportionately reallocated to the Pacific Discriminating Radar program element. PWS is allocated on a pro-rata basis across multiple Agency PE's each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.

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

PWS contains non-headquarters management costs in support of MDA functions and activities across the entire BMDS. It Includes Government Civilians and Contract Support Services. This provides integrity and oversight of the BMDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs include: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; Facilities Sustainment, Restoration and Modernization (SRM) program, (formerly Real Property Maintenance) to keep the Department's inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.

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

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> Program Wide Support	0.000	0.000	1.555
<b>Articles:</b>	-	-	-
<b>Description:</b> PWS contains non-headquarters management costs in support of MDA functions and activities across the entire BMDS. It Includes Government Civilians and Contract Support Services. This provides integrity and oversight of the BMDS and supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs include: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; Facilities Sustainment, Restoration and Modernization (SRM) program, (formerly Real Property Maintenance) to keep the Department's inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.			
<b>FY 2019 Plans:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Missile Defense Agency		<b>Date:</b> March 2019	
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604673C / <i>Pacific Discriminating Radar</i>	<b>Project (Number/Name)</b> MD40 / <i>Program Wide Support</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2018</b>	<b>FY 2019</b>
- SEE ABOVE.  <b>FY 2020 Plans:</b> - SEE ABOVE.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Increase from FY 2019 to FY 2020 reflects the PWS allocation on a pro-rata basis across multiple Agency PE's each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.			
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A  <b>Remarks</b>  <b>D. Acquisition Strategy</b> N/A  <b>E. Performance Metrics</b> N/A			

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0604673C / Pacific Discriminating Radar				Project (Number/Name) MD40 / Program Wide Support					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Facilities and Maintenance (MIPR)	MIPR	Various : Multi: AL, VA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, VA, and Aust,	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, VA	0.000	0.000		0.000		1.555	Dec 2019	-		1.555	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		1.555		-		1.555	Continuing	Continuing	N/A
Remarks N/A															
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		0.000		1.555		-		1.555	Continuing	Continuing	N/A
Remarks Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency														Date: March 2019																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Appropriation/Budget Activity								R-1 Program Element (Number/Name)								Project (Number/Name)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
0400 / 4								PE 0604673C / Pacific Discriminating Radar								MD40 / Program Wide Support																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
MD40 Program-Wide Support																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604673C / Pacific Discriminating Radar	Project (Number/Name) MD40 / Program Wide Support	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD40 Program-Wide Support	1	2020	4	2024

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604673C / Pacific Discriminating Radar				Project (Number/Name) MD51 / Pacific Radar (PAC Radar)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD51: Pacific Radar (PAC Radar)	-	0.000	15.926	5.156	-	5.156	56.961	37.728	263.490	384.954	0.000	764.215
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Beginning in FY 2019, Pacific Radar (PAC Radar) (Formerly known as Medium Range Discriminating Radar (MRDR)) was transferred from BMD Sensors Program Element 0603884C.

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

The mission of the PAC Radar program office is to define, develop, acquire, field, and sustain the radar as an element of the BMDS. Initial fielding of the PAC Radar is planned for FY 2026 and it will provide persistent midcourse discrimination, precision tracking, and hit assessment to support the defense of the Homeland against long-range missile threats and defense against regional threats in the USINDOPACOM area of responsibility. The PAC Radar will be integrated into the BMDS through the C2BMC system and will feature a scalable and open system architecture to mitigate evolving threats. The radar also supports additional mission areas including Space Situational Awareness. The PAC Radar is comprised of an equipment shelter housing multiple array faces, a Mission Control Facility (MCF) which supports radar operations, and supporting facilities and infrastructure. The radar prime contractor will be responsible for building and fielding the radar equipment with associated cooling system and the radar equipment shelter to include foundation. Siting surveys will be conducted and EIS will be completed to determine final recommended site.

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

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> Pacific Radar (PAC Radar)	0.000	15.926	5.156
<b>Articles:</b>	-	-	-
<p><b>Description:</b> Formerly Homeland Defense Radar-Pacific (HDR-P), the Pacific Radar (PAC Radar) program includes requirements development activities associated with systems engineering, hardware and software development, discrimination improvements, design reviews, testing, and M&amp;S efforts for radar development. Efforts include refining final site selection and site survey.</p> <ul style="list-style-type: none"> <li>- Development of C2BMC systems for PAC Radar functionality.</li> <li>- Development of radar software.</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2019 Plans:</b></p> <ul style="list-style-type: none"> <li>- Develop requirements and Element Specifications</li> <li>- Location refinement</li> </ul> <p><b>FY 2020 Plans:</b></p>			

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604673C / Pacific Discriminating Radar					Project (Number/Name) MD51 / Pacific Radar (PAC Radar)		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)										FY 2018	FY 2019	FY 2020
- Complete requirements definition												
FY 2019 to FY 2020 Increase/Decrease Statement: Decrease from FY 2019 to FY 2020 reflects a delay in Pacific Discriminating Radar initial fielding by two years from FY 2024 to FY 2026.												
Accomplishments/Planned Programs Subtotals										0.000	15.926	5.156
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• 0603882C: Ballistic Missile Defense Midcourse Defense Segment	1,153.263	803.359	1,156.506	-	1,156.506	829.451	766.237	834.533	776.671	Continuing	Continuing	
• 0603884C: SENSORS MILCON	0.000	174.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	174.000	
• 0603896C: Ballistic Missile Defense Command and Control, Battle Management & Communication	449.985	507.817	564.206	-	564.206	534.988	502.581	525.742	535.636	Continuing	Continuing	
• 0604672C: Homeland Defense Radar - Hawaii - MILCON	0.000	0.000	0.000	-	0.000	138.000	183.000	0.000	0.000	0.000	321.000	
• 0604672C: Homeland Defense Radar-Hawaii	0.000	62.221	274.714	-	274.714	210.614	135.627	87.773	40.772	0.000	811.721	
• 0604673C: Pacific Discriminating Radar	59.564	15.926	6.711	-	6.711	59.800	53.444	279.349	398.573	0.000	873.367	
• 0604673C: Pacific Discriminating Radar - MILCON	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	365.970	0.000	365.970	
• 0604873C: Long Range Discrimination Radar (LRDR)	370.516	166.543	136.423	-	136.423	122.877	99.920	88.203	64.569	Continuing	Continuing	
• 0604879C: Ballistic Missile Defense Sensor Test	88.840	77.405	105.530	-	105.530	114.698	99.088	112.943	96.526	Continuing	Continuing	
• 31299903: MILCON PLANNING and DESIGN	0.000	6.184	35.472	-	35.472	20.848	30.185	42.000	19.543	0.000	154.232	
Remarks												

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604673C / Pacific Discriminating Radar	Project (Number/Name) MD51 / Pacific Radar (PAC Radar)
<b>D. Acquisition Strategy</b> The PAC Radar acquisition strategy was approved in December 2017. The PAC Radar procurement will be part of the Multi-Award IDIQ (MAIDIQ) contract that will include the full/open competitive award of the first Delivery Order for the PAC Radar no later than FY 2022. The prime contractor will manage, develop, build and integrate, test, and deliver the radar. The prime contract will include other fixed price and cost-reimbursable line items and options in order to properly balance acquisition costs and risks. Performance and cost incentives will be included to motivate on-time delivery. The radar prime contractor will deliver a full technical data package, which will enable the government to effectively and affordably sustain the system. Initial fielding for PAC Radar is planned for FY 2026.		
<b>E. Performance Metrics</b> N/A		

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
0400 / 4						PE 0604673C / Pacific Discriminating Radar				MD51 / Pacific Radar (PAC Radar)					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Pacific Radar (PAC Radar) - — Civilian/Travel	Allot	MDA : Various	0.000	0.000		0.625	Nov 2018	1.225	Oct 2019	-		1.225	Continuing	Continuing	Continuing
Pacific Radar (PAC Radar) - Communications Integration	SS/CPIF	Lockheed Martin : AL	0.000	0.000		9.354	Mar 2019	2.984	Oct 2019	-		2.984	Continuing	Continuing	Continuing
Pacific Radar (PAC Radar) - Contractor Support Services	Various	Various : Various	0.000	0.000		0.947	Nov 2018	0.947	Oct 2019	-		0.947	Continuing	Continuing	Continuing
Pacific Radar (PAC Radar) - Site Activation & Studies	MIPR	TBD : TBD	0.000	0.000		5.000	Feb 2019	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		15.926		5.156		-		5.156	Continuing	Continuing	N/A
Remarks															
N/A															
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		15.926		5.156		-		5.156	Continuing	Continuing	N/A
Remarks															
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency												Date: March 2019											
Appropriation/Budget Activity						R-1 Program Element (Number/Name)						Project (Number/Name)											
0400 / 4						PE 0604673C / Pacific Discriminating Radar						MD51 / Pacific Radar (PAC Radar)											
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 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024					
Pacific Radar													◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
System Requirements Review (SRR)														△									
Preliminary Design Review (PDR)															△								
Developmental Baseline Review (DBR)																	△						
Critical Design Review (CDR)																		△					
MILCON																			◆	◆	◆	◆	

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Missile Defense Agency			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604673C / <i>Pacific Discriminating Radar</i>	<b>Project (Number/Name)</b> MD51 / <i>Pacific Radar (PAC Radar)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Pacific Radar	3	2021	1	2025
System Requirements Review (SRR)	1	2022	1	2022
Preliminary Design Review (PDR)	3	2022	3	2022
Developmental Baseline Review (DBR)	2	2023	2	2023
Critical Design Review (CDR)	4	2023	4	2023
MILCON	1	2024	1	2025