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Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Air Force										DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 ITEM NOMENCLATURE PE 0603432F: Polar MILSATCOM (SPACE)							
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 <sup>#</sup>	FY 2014 Base	FY 2014 OCO <sup>##</sup>	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	1,110.351	103.098	120.676	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,334.125
644052: Polar Satellite Communications	1,110.351	103.098	120.676	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,334.125
Quantity of RDT&E Articles		0	0	0		0	0	0	0	0		
MDAP/MAIS Code(s): 121												
# 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												
In FY2014, Project 644052, Polar Satellite Communications, efforts transferred to PE 0605432F, Polar MILSATCOM (Space), Project 657105, Polar Satellite Communications, in order to transition to Budget Activity 5.												
A. Mission Description and Budget Item Justification												
This program element acquires the Polar Military Satellite Communications (MILSATCOM) system that provides protected communications (anti-jam and low probability of intercept and detection) for users in the north polar region.												
Through FY05, Polar Satellite Communications funded three low data rate (LDR) Milstar payloads on three classified host satellites as an expedited, interim solution for protected connectivity requirements in the north polar region (i.e., Interim Polar System (IPS)). Two satellites with hosted payloads are required to provide the necessary 24-hour coverage. The third payload went into operations in November 2008 to sustain the 24-hour coverage.												
In FY06, the DoD began funding the next generation Polar Satellite Communications capability with two more polar payloads via the same host vehicle type (i.e., Enhanced Polar System (EPS)). The host spacecraft and the polar communications payloads required design modifications that replaced obsolete components and took advantage of the more capable Advanced Extremely High Frequency (AEHF) technology including the eXtended Data Rate (XDR) waveform. The EPS Capability Development Document (CDD), approved by the Joint Requirements Oversight Council in September 2006, is based on a two-payload, hosted XDR program with operational availability in CY15 and CY17. The EPS system is comprised of four segments: Payload, Ground Control, Gateway, and Terminal (acquired by each Service's Terminal Program Office).												
In FY11, the EPS CDD was updated to provide a stand-alone ground capability that was no longer fully integrated with AEHF. The restructured program will deliver "IPS-like" capability with the XDR waveform, and a connection to the defense network. The ground Control and Planning Segment (CAPS) contract was awarded late November 2012. The program office will conduct a CAPS Preliminary Design Review (PDR) and a Gateway Segment Critical Design Review late FY13. An EPS system-level PDR will be held 4QFY2013.												

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In FY14, due to a change in Budget Activity from 4 to 5, funds transfer to PE 0605432F, Project 657105.						
The Polar MILSATCOM program is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P) because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.						
B. Program Change Summary (\$ in Millions)		FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget		101.348	120.676	124.805	-	124.805
Current President's Budget		103.098	120.676	0.000	-	0.000
Total Adjustments		1.750	0.000	-124.805	-	-124.805
• Congressional General Reductions		-	0.000			
• Congressional Directed Reductions		-	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		-	0.000			
• Congressional Directed Transfers		-	0.000			
• Reprogrammings		0.000	0.000			
• SBIR/STTR Transfer		1.750	0.000			
• Other Adjustments		0.000	0.000	-124.805	-	-124.805
Change Summary Explanation						
FY12: The SBIR reduction to the program was inadvertently added in a database error. The program paid \$1.750M in SBIR, and as such, has a baseline to execute of \$99.598M, rather than the amount reflected in the R1 and R2 of \$103.098M.						
FY14: Other Adjustment row: -\$124.805M, due to change in Budget Activity from 4 to 5, funds have been transferred to PE 0605432F, Project 657105.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2012	FY 2013	FY 2014
Title: EPS				99.598	120.676	0.000
Description: Develop and acquire EPS MILSATCOM						
FY 2012 Accomplishments:						
In FY2012: Delivered two payloads to the host and initiated integration of payloads onto host satellites. Conducted the CAPS source selection. Continued development of the Gateway segment and conducted the Preliminary Design Review.						
FY 2013 Plans:						

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C. Accomplishments/Planned Programs (\$ in Millions)								FY 2012	FY 2013	FY 2014	
In FY2013: Will continue integration of the two EPS payloads onto the host satellites. Awarded CAPS contract. Will conduct the Preliminary Design Review; and will conduct the Gateway segment Critical Design Review. Will conduct an EPS system-level Preliminary Design Review.											
FY 2014 Plans: In FY2014, funds transfer to PE 0605432F, Project 657105.											
Title: Database error								3.500	0.000	0.000	
Description: Funds inadvertently added to Air Force accounting system											
FY 2012 Accomplishments: The \$1.750M SBIR reduction to the program was inadvertently added in a database error resulting in a \$3.500M error. The program paid \$1.750M in SBIR, and as such, has a baseline to execute of \$99.598M, rather than the amount reflected in the R1 and R2 of \$103.098M."											
FY 2013 Plans: Not applicable.											
FY 2014 Plans: Not applicable											
Accomplishments/Planned Programs Subtotals								103.098	120.676	0.000	
D. Other Program Funding Summary (\$ in Millions)											
Line Item	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
• RDT&E: BA05: PE 0605432F: Polar MILSATCOM (Space)	0.000	0.000	124.805		124.805	96.782	73.402	52.244	25.140	0.000	372.373
Remarks The Navy has used its own PE(s) to modify control systems and terminals to work with the Interim Polar System.											
E. Acquisition Strategy The Enhanced Polar System (EPS) is the follow-on to the currently operational Interim Polar System (IPS) and is a component of the Extremely High Frequency SATCOM architecture providing secure, protected communications to worldwide users. The EPS acquisition consists of four segments (Payload, Ground Control, Gateway, and Terminal) acquired by separate procurement actions. The EPS payloads will be hosted on a classified satellite and acquired by the organization hosting											

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Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Air Force		DATE: April 2013
<b>APPROPRIATION/BUDGET ACTIVITY</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603432F: <i>Polar MILSATCOM (SPACE)</i>
the EPS payloads. The MILSATCOM System Directorate will procure the Ground Control and Gateway segments. The Terminals which will use EPS will be acquired by each Service's Terminal Program Office.		
<b>F. Performance Metrics</b> Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Air Force												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 4: Advanced Component Development & Prototypes (ACD&P)						R-1 ITEM NOMENCLATURE PE 0603432F: Polar MILSATCOM (SPACE)				PROJECT 644052: Polar Satellite Communications					
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
Classified	TBD	TBD:TBD,	299.594	0.000		0.000		0.000		-		0.000	0.000	299.594	
EPS Requirement Analyses and Design Trade Studies	Various	Various:Various,	76.187	0.000		0.000		0.000		-		0.000	0.000	76.187	
Mission Control Segment Design Trade Studies	SS/CPAF	Lockheed Martin:Sunnyvale, CA	29.509	0.000		0.000		0.000		-		0.000	0.000	29.509	
Ground study and Emulator development	MIPR	Johns Hopkins University/ Applied Physics Lab:Columbia, MD	11.146	0.000		0.000		0.000		-		0.000	0.000	11.146	
Control and Planning Segment	C/CPIF	Northrop Grumman Information Systems:Redondo Beach, CA,	0.000	0.000		42.344	Nov 2012	0.000		-		0.000	0.000	42.344	
Gateway architecture development	MIPR	Space and Naval Warfare Systems Command (SPAWAR) Systems Center - Pacific:San Diego, CA	5.400	12.396	Dec 2011	14.295	Dec 2012	0.000		-		0.000	0.000	32.091	
EPS Payload Design/ Development Contract	SS/CPAF	NGAS:Redondo Beach, CA	553.053	58.297	Dec 2011	27.622	Dec 2012	0.000		-		0.000	0.000	638.972	
Cryptographic Modifications	MIPR	NSA:Camden, NJ	6.845	1.129	Dec 2011	3.724	Dec 2012	0.000		-		0.000	0.000	11.698	
Subtotal			981.734	71.822		87.985		0.000		0.000		0.000	0.000	1,141.541	
Remarks															
Classified Contract Method/Type/Activity and Location are classified															
FY14 funds transferred to PE 0605432F, Project 657015.															

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Air Force												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 4: Advanced Component Development & Prototypes (ACD&P)						R-1 ITEM NOMENCLATURE PE 0603432F: Polar MILSATCOM (SPACE)				PROJECT 644052: Polar Satellite Communications					
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
Systems Engineering & Integration	Various	Linquest:Los Angeles, CA	0.000	8.263	Dec 2011	7.984	Dec 2012	0.000		-		0.000	0.000	16.247	
Govt Furnished Property	Various	Various:Various,	10.957	0.000		0.420	Dec 2012	0.000		-		0.000	0.000	11.377	
Systems Integration/ Ground Software Support	MIPR	Johns Hopkins University/ Applied Physics Lab:Columbia, MD	0.000	1.179	Sep 2012	2.408	May 2013	0.000		-		0.000	0.000	3.587	
Ground Control Software Support	MIPR	Software Engineering Institute, Carnegie Mellon University:Pittsburgh, PA	0.000	0.218	Mar 2012	0.472	Feb 2013	0.000		-		0.000	0.000	0.690	
Subtotal			10.957	9.660		11.284		0.000		0.000		0.000	0.000	31.901	
Remarks FY14 funds transferred to PE 0605432F, Project 657105.															
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
Planning/Management Support for T&E	MIPR	Space and Naval Warfare Systems Center - Pacific:San Diego, CA	0.000	0.557	Dec 2011	0.696	Dec 2012	0.000		-		0.000	0.000	1.253	
Subtotal			0.000	0.557		0.696		0.000		0.000		0.000	0.000	1.253	
Management Services (\$ 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
Program Office FFRDC engineering (PMA)	Various	Various:Various,	47.567	10.549	Dec 2011	9.461	Dec 2012	0.000		-		0.000	0.000	67.577	

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Management Services (\$ 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
Program Office Support	Various	Various:Various,	12.967	0.761	Dec 2011	1.286	Dec 2012	0.000		-		0.000	0.000	15.014	
Travel/Business Ops Support Services/ Acquisition Mission Support (PMA)	Various	Various:Various,	57.126	6.249	Dec 2011	9.964	Dec 2012	0.000		-		0.000	0.000	73.339	
Database error - SBIR	TBD	Not specified.:	0.000	3.500		0.000		0.000		-		0.000	0.000	3.500	
Subtotal			117.660	21.059		20.711		0.000		0.000		0.000	0.000	159.430	
Remarks															
FY12: The \$1.750M SBIR reduction to the program was inadvertently added in a database error resulting in a \$3.500M error.															
FY14 funds transferred to PE 0605432F, Project 657105.															
			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			1,110.351	103.098		120.676		0.000		0.000		0.000	0.000	1,334.125	
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Air Force

DATE: April 2013

## APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force  
BA 4: Advanced Component Development & Prototypes (ACD&P)

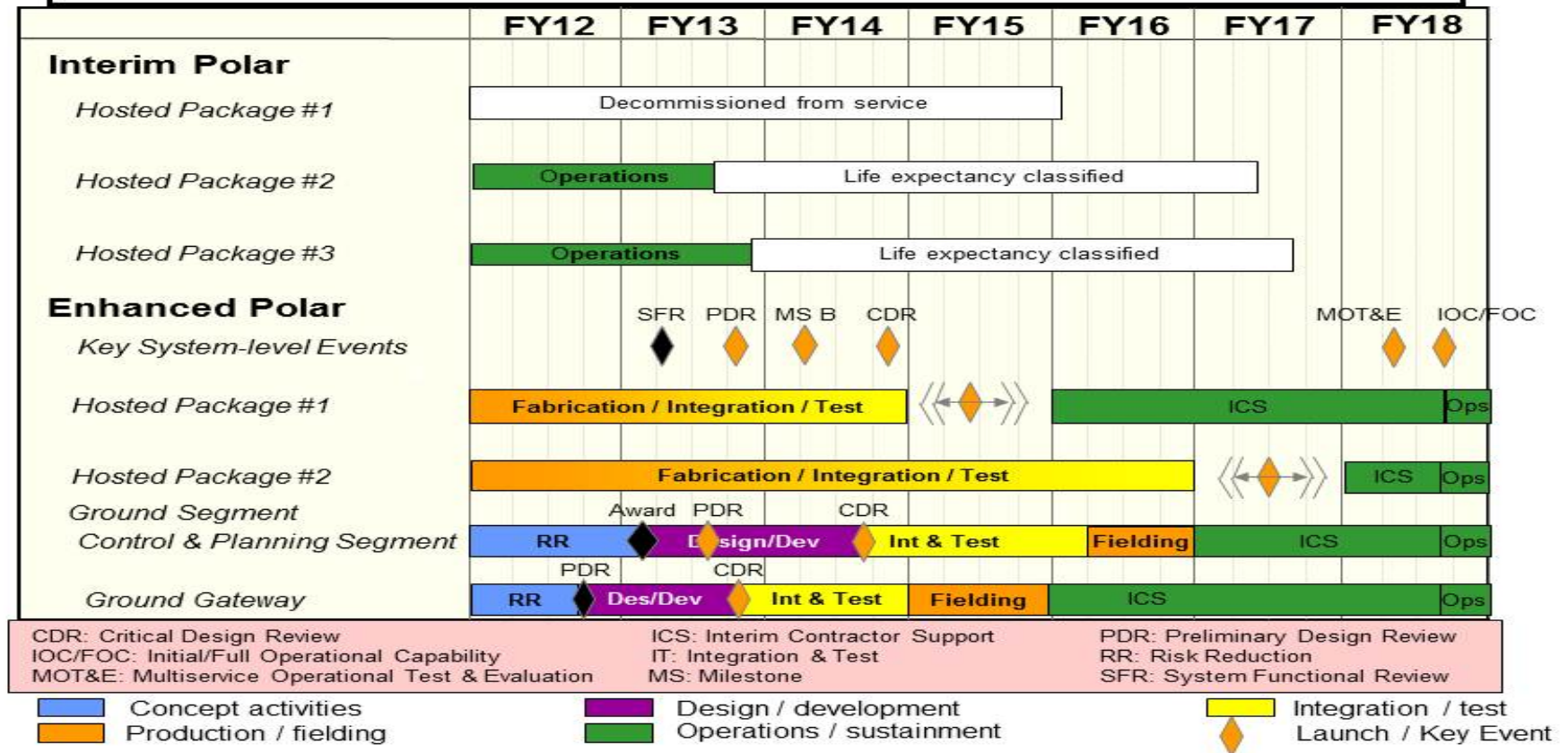
## R-1 ITEM NOMENCLATURE

PE 0603432F: Polar MILSATCOM (SPACE)

## PROJECT

644052: Polar Satellite Communications

**These efforts are funded in PE 0603432F, Project 644052 through FY13.  
Beginning FY14 these efforts are funded in PE 0605432F, Project 657105.**





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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2014 Air Force			<b>DATE:</b> April 2013
<b>APPROPRIATION/BUDGET ACTIVITY</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603432F: <i>Polar MILSATCOM (SPACE)</i>	<b>PROJECT</b> 644052: <i>Polar Satellite Communications</i>	

## Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Delivered payload #1 and began integration onto host satellite	4	2012	4	2012
Deliver payload #2 and begin integration onto host satellite	2	2013	2	2013
Ground Gateway Preliminary Design Review	4	2012	4	2012
Award the Control and Planning Segment (CAPS) contract	1	2013	1	2013
CAPS Preliminary Design Review	3	2013	3	2013
Ground Gateway Critical Design Review	4	2013	4	2013
Enhanced Polar System system-level Preliminary Design Review	4	2013	4	2013