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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force										Date: February 2018		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 1203001F I Family of Advanced BLoS Terminals (FAB-T)							
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	50.071	32.426	80.168	0.000	80.168	184.320	178.794	132.694	71.682	0.000	730.155
672490: Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)	-	50.071	32.426	80.168	0.000	80.168	184.320	178.794	132.694	71.682	0.000	730.155
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

The FAB-T program replaces legacy Milstar terminals and will provide Extremely High Frequency (EHF), protected high data rate communication for nuclear and conventional forces to include Presidential and National Voice Conferencing (PNVC). FAB-T will provide this new, highly secure, state-of-the-art capability for DoD platforms to include strategic platforms and airborne/ground command posts via Milstar, AEHF, and Enhanced Polar System (EPS) satellites. FAB-T terminals will also support the critical command and control (C2) of the Milstar, AEHF and EPS satellite constellations. The Air Force will continue development of the FAB-T Command Post Terminal (CPT), performing systems engineering, architecture studies, development & operational test efforts, FAB-T terminal interoperability with the full AEHF satellite constellation activities, and other program activities to meet current and future emerging SATCOM requirements.

The Force Element Terminal (FET) subprogram provides a nuclear survivable terminal capable of communicating with the Milstar and AEHF satellites, and provides for survivable NC3 data transport services (EAM dissemination and force report back) for airborne platforms. The FET is for the B-52 and select RC-135 aircraft and will not provide satellite control or PNVC functionality.

The PNVC capability is a critical element of the Nuclear Command, Control, and Communications (NC3) System. PNVC is the Survivable Emergency Conferencing Network (SECN) replacement capability which provides anti-jam, anti-scintillation, survivable, and endurable voice communications through the AEHF satellite system for national and strategic users. There are several components being developed and procured by other organizations that must be synchronized to expeditiously field this capability. The PNVC Integrator is responsible for end-to-end integration of these components, to include requirements traceability, end-to-end system testing, configuration and checkout activities, training and technical manuals, network transition support, identification of deficiencies in overall PNVC system capability, enterprise and life cycle support for PNVC components. The AFPEO/SP approved entry into the acquisition lifecycle as a post MS-A ACAT III Program of Record in January 2016.

The current and future space domain demands that space systems be responsive to new and changing threats, and can rapidly integrate new capabilities to make our warfighting force more resilient in a contested battlespace. This agility, survivability, and rapid reconstitution must extend through the entire space warfighting enterprise, to include how we learn about the threat; develop solutions; acquire, test, deploy, train, operate and integrate new systems into the greater system of systems; and ensure our space mission force is ready to defeat a thinking adversary in a complex, multi-domain battlespace. The enterprise will use all of its elements to accelerate decision-making, prototype potential solutions, rapidly integrate decision-making tools and sustain a war-winning capability by delivering multi-domain effects in, from, and through space and cyberspace enabling battle management and resilience options to "fight through."

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This program element may include necessary civilian pay expenses required to manage, execute, and deliver FAB-T weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.						
This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.						
B. Program Change Summary (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget		52.578	32.426	21.871	0.000	21.871
Current President's Budget		50.071	32.426	80.168	0.000	80.168
Total Adjustments		-2.507	0.000	58.297	0.000	58.297
• 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		7.740	0.000			
• SBIR/STTR Transfer		-0.047	0.000			
• Other Adjustments		-10.200	0.000	58.297	0.000	58.297
Change Summary Explanation						
FY2017: -\$10.200M Decrease of \$10.2M because of FY 2017 Request for Additional Appropriations (RAA) for PNVC Integrator was not appropriated.						
FY2017: \$7.740 Increase for PNVC Integrator.						
FY 2019: \$14.90M increase for PNVC Integrator.						
FY 2019: \$44.0M increase for FAB-T Force Element Terminal (FET).						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2017	FY 2018	FY 2019
Title: FAB-T CPT Development				14.532	0.000	0.000
Description: The FAB-T program will provide EHF voice and data MILSATCOM for nuclear and conventional forces as well as airborne and ground command posts with connectivity to Milstar, AEHF, and EPS satellites.						
FY 2018 Plans:						

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
N/A				
<b>FY 2019 Plans:</b>				
N/A				
<b>FY 2018 to FY 2019 Increase/Decrease Statement:</b>				
N/A				
<b>Title:</b> PNVC Integrator  <b>Description:</b> PNVC is the SECN replacement capability which provides anti-jam, anti-scintillation, survivable, and endurable voice communications through the AEHF satellite system for national and strategic users. The PNVC capability consists of constituent programs being developed and produced by other organizations. This program will integrate test and support configuration of hardware from these other programs. PNVC components will be installed at ground fixed and mobile command locations, as well as in the airborne E-4B, E-6B and Very Important Person Special Airlift Mission (VIPSAM) aircraft.  <b>FY 2018 Plans:</b> Execute Developmental Test focused on system functional performance with expanded number of network participants in a scintillated environment potentially with air terminal components. Continue support of fielding activities. Execute factory test with production assets to assess component compliance with authenticated system specification and establish training and technical publications required to support Developmental and Operational Testing activities. Continue program office support and other related support activities that may include, but are not limited to studies, technical analysis, etc.  <b>FY 2019 Plans:</b> Award Product Support Integrator contract activity to complete training, technical publications and conclude Developmental and Operational Testing activities. Execute further Developmental Test focused on system functional performance with an expanded number of network participants to address all nodes (fixed, transportable, airborne and special users) in a scintillated environment with component variants. Continue support of fielding activities and site checkout. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> FY 2019 increased compared to FY 2018 by \$15.250M. Justification for this increase is described in plans above.		35.539	21.246	36.496
<b>Title:</b> FAB-T FET		-	11.180	43.672

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>							<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>		
<b>Description:</b> Funding to ensure continued effort to complete the cost/capability analysis and begin development of force element terminals on B-52 and RC-135 aircraft. FAB-T FET is a sub-program under FAB-T and previously funded in FY16 under FAB-T FET CCA.  <b>FY 2018 Plans:</b> Funding to ensure continued effort to complete the cost/capability analysis and begin development of Force Element Terminals on B-52 and RC-135 aircraft.  <b>FY 2019 Plans:</b> Funding for the continued development of Force Element Terminals. Activities will include, but not limited to, development and coordination of regulatory and statutory Milestone documents, technical requirements definition, and FET Request for Proposal (RFP) planning for award of a development contract in FY 2019. Funding will also be used for technology risk reduction activities and platform environmental studies to ensure a viable AEHF terminal can be developed in timely manner for the B-52 and RC-135. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> FY 2019 increased by \$32.492M compared to FY 2018. Justification for this increase is described in plans above.											
<b>Accomplishments/Planned Programs Subtotals</b>							50.071	32.426	80.168		
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 FBLOST: <i>FAB-T</i>	4.673	22.252	14.292	-	14.292	1.969	1.576	0.000	0.000	0.000	44.762
• APAF 05 PNVC: <i>PNVC</i>	-	2.464	-	-	-	-	-	-	-	0.000	2.464
• SPAF 03 FBLOST: <i>FAB-T</i>	88.963	144.758	27.867	-	27.867	32.105	8.497	0.000	88.913	0.000	391.103
• SPAF 03 PNVC: <i>PNVC</i>	-	2.214	-	-	-	-	-	-	-	0.000	2.214
• APAF 03 Aircraft Spares and Repa...: <i>FAB-T</i>	3.561	1.343	6.141	-	6.141	0.000	0.000	0.000	-	0.000	11.045
• SPAF 03 SSPARE Spares and Repair...: <i>FAB-T</i>	12.078	3.598	20.583	-	20.583	0.057	0.000	0.000	-	0.000	36.316
<b>Remarks</b>											

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<b>E. Acquisition Strategy</b>  FAB-T Acquisition Strategy: In FY 2012, the government restructured the FAB-T development program to introduce competition into the acquisition strategy in order to reduce risk in delivering this capability as well as to drive down production costs. To ensure the best value to the government, the Air Force awarded production contracts in September 2013 to both contractors (Boeing and Raytheon). The production contracts began with production planning for both contractors. In June 2014, the Air Force down-selected to Raytheon. Development and production of FAB-T Command Post Terminals continued with Raytheon. The first Production contract options to produce CPT terminals were exercised after a successful Milestone C decision was approved September 1, 2015.  PNVC Acquisition Strategy: On May 15, 2015 the Deputy Secretary of Defense assigned the PNVC End-to-End Integration responsibility to the Air Force; effective May 16, 2015, SAF/AQ designated the AFPEO/SP. The PNVC End-to-End Integrator program is responsible for requirements traceability, End-to-End system testing, site configuration activities, training and technical manuals, network transition support, identifying deficiencies in the PNVC capability, and enterprise and life cycle support for all PNVC components.		
<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 2019 Air Force												Date: February 2018			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 1203001F / Family of Advanced BLoS Terminals (FAB-T)				Project (Number/Name) 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
FAB-T Prime Contract	Various	Various : Various, MA	-	1.630		-		-		-		-	Continuing	Continuing	-
FAB-T Technical Mission Analysis	Various	Various : Various, MA	-	9.919	Jul 2016	-		-		-		-	Continuing	Continuing	-
FAB-T GFE	Various	Various : Various, MA	-	0.144		-		-		-		-	Continuing	Continuing	-
FAB-T FET Prime Contract	Various	Various : Various, MA	-	-		4.230	Jan 2018	33.272	Apr 2019	-		33.272	Continuing	Continuing	-
FAB-T FET Technical Mission Analysis	Various	Various : Various, MA	-	-		4.200	Jan 2018	3.000	Oct 2018	-		3.000	Continuing	Continuing	-
PNVC Prime Contract	Various	Various : Various, MA	-	22.603	Jan 2017	11.394	Feb 2018	16.184	Jan 2019	-		16.184	Continuing	Continuing	-
PNVC Technical Mission Analysis	Various	Various : Various, MA	-	6.428	Jan 2017	5.149	Jan 2018	5.891	Oct 2018	-		5.891	Continuing	Continuing	-
PNVC Enterprise SE&I	Various	Various : Various, MA	-	2.735		-		1.904	Nov 2018	-		1.904	Continuing	Continuing	-
Subtotal			-	43.459		24.973		60.251		-		60.251	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
FAB-T Government Test and LDTO Support	PO	Various : Various	-	1.211		-		-		-		-	Continuing	Continuing	-
FAB-T FET Test and Evaluation	PO	Various : Various	-	-		-		1.500	Nov 2018	-		1.500	Continuing	Continuing	-
PNVC Government Test and LDTO Support	PO	Various : Various	-	-		1.800	Jan 2018	4.800	Apr 2019	-		4.800	Continuing	Continuing	-
Subtotal			-	1.211		1.800		6.300		-		6.300	Continuing	Continuing	N/A

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Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
FAB-T FFRDC	Various	Not specified. : TBD	-	0.398	Jul 2018	-		-		-		-	Continuing	Continuing	-
FAB-T A&AS	Various	Various : TBD : MA	-	0.836	Dec 2017	-		-		-		-	Continuing	Continuing	-
FAB-T Other Support	Various	Various : MA	-	0.123	Oct 2016	-		-		-		-	Continuing	Continuing	-
FAB-T FET Other Support	Various	Various : MA	-	-		0.250	Oct 2017	1.500	Oct 2018	-		1.500	Continuing	Continuing	-
FAB-T FET A&AS	Various	Various : MA	-	-		2.500	Jan 2018	4.400	Oct 2018	-		4.400	Continuing	Continuing	-
FAB-T FET CCA Other Support	Various	Various : MA	-	0.075	Oct 2016	-		-		-		-	Continuing	Continuing	-
PNVC FFRDC	MIPR	Various : CA	-	2.398	Nov 2016	-		2.673	Nov 2018	-		2.673	Continuing	Continuing	-
PNVC A&AS	Various	Various : TBD	-	1.041	Jul 2017	1.796		3.300	Oct 2018	-		3.300	Continuing	Continuing	-
PNVC Other Support	Various	Various : MA	-	0.530	Oct 2016	1.107		1.744	Oct 2018	-		1.744	Continuing	Continuing	-
Subtotal			-	5.401		5.653		13.617		-		13.617	Continuing	Continuing	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	50.071		32.426		80.168		-		80.168	Continuing	Continuing	N/A
Remarks Prior Years funding, FY 2016 \$14.573M was executed in PE 0303001F. Prior to FY 2016, \$180.602M was executed in PE 0303601F.															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2019 Air Force										<b>Date:</b> February 2018			
<b>Appropriation/Budget Activity</b> 3600 / 7					<b>R-1 Program Element (Number/Name)</b> PE 1203001F / <i>Family of Advanced BLoS Terminals (FAB-T)</i>					<b>Project (Number/Name)</b> 672490 / <i>Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)</i>			

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
<b><i>FAB-T</i></b>																												
FAB-T CPT Raytheon Development Contract																												
FAB-T Government Test Support																												
FAB-T Force Element Terminal																												
PNVC Integrator																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Air Force			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 1203001F / <i>Family of Advanced BLoS Terminals (FAB-T)</i>	<b>Project (Number/Name)</b> 672490 / <i>Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)</i>	

**Schedule Details**

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
<b><i>FAB-T</i></b>				
FAB-T CPT Raytheon Development Contract	1	2017	2	2018
FAB-T Government Test Support	1	2017	2	2018
FAB-T Force Element Terminal	1	2018	4	2022
PNVC Integrator	4	2017	4	2022

**Note**  
FAB-T Raytheon Development Contract actual award date 4Q 2012, completion is 2Q 2018.