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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0303601F / MILSATCOM Terminals							
COST (\$ in Millions)	Prior Years <sup>(+)</sup>	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	2,216.097	9.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2,225.097
672490: Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)	180.602	9.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	189.602

**Program MDAP/MAIS Code:** 199

<sup>(+)</sup> The sum of all Prior Years is \$2035.495 million less than the represented total due to several projects ending

## Note

In FY2016, PE 0303601F, MILSATCOM Terminals, Project 672490, Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) was transferred to PE 0303001F, FAB-T, Project 672490 FAB-T for improved visibility of ACAT I programs.

FAB-T was funded FY13 and prior in PE 0303601F, Project Number 672487 and Project Number 672489. In FY14 it was transferred to Project Number 672490 in the same PE.

## A. Mission Description and Budget Item Justification

The Military Satellite Communications (MILSATCOM) terminals program develops and fields equipment enabling users to communicate via legacy and future systems to include Milstar, Advanced Extremely High Frequency (AEHF), Ultra High Frequency (UHF) Follow-On (UFO), Wideband Global SATCOM (WGS), Defense Satellite Communication System (DSCS), Enhanced Polar Systems (EPS), and other military and commercial satellites, to support tactical Air and Space Expeditionary Force requirements and maintain essential connectivity for strategic forces. Program RDT&E currently includes the following efforts:

- 1) Development work to identify commercial/military technology solutions to improve MILSATCOM terminal capabilities for the warfighters. Focus includes, but is not limited to, increasing throughput, facilitating sustainability, reducing footprint on existing user platforms and future concept terminals to provide more resilient and/or higher data rate satellite communications to warfighters.
- 2) The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) program replaces legacy Milstar Command Post Terminals (CPT) and will provide Extremely High Frequency (EHF), protected high data rate communication for nuclear and conventional forces to include Presidential 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. In FY15, the Air Force continued development of the FAB-T terminal.
- 3) The Presidential and National Voice Conferencing (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

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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, site installation and checkout activities, training and technical manuals, network transition support, identification of deficiencies in overall PNVC system capability, and logistics 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.						
4) The Joint Terminal Engineering Office (JTEO) provides tri-service coordination of terminal development, acquisition and fielding activities.						
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget		0.000	0.000	0.000	0.000	0.000
Current President's Budget		9.000	0.000	0.000	0.000	0.000
Total Adjustments		9.000	0.000	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		9.000	0.000			
• SBIR/STTR Transfer		0.000	0.000			
• Other Adjustments		0.000	0.000	0.000	0.000	0.000
Change Summary Explanation						
Presidential and National Voice Conferencing (PNVC) Integrator received \$9M in FY2016 for program activities.						

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303601F / MILSATCOM Terminals				Project (Number/Name) 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
672490: Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)	180.602	9.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	189.602
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**Note**

In FY2016, PE 0303601F, MILSATCOM Terminals, Project 672490, Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) was transferred to PE 0303001F, FAB-T, Project 672490 FAB-T for improved visibility of ACAT I programs.

FAB-T was funded FY13 and prior in PE 0303601F, Project Number 672487 and Project Number 672489. In FY14 it was transferred to Project Number 672490 in the same PE.

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

The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) program replaces legacy Milstar Command Post Terminals (CPT) and will provide Extremely High Frequency (EHF), protected high data rate communication for nuclear and conventional forces to include Presidential 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 Presidential and National Voice Conferencing (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-sciintillation, survivable, and enduring 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, site installation and checkout activities, training and technical manuals, network transition support, identification of deficiencies in overall PNVC system capability, and logistics 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.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<b>Title:</b> FAB-T Development	0.000	-	-
<b>Description:</b> 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.			
<b>FY 2016 Accomplishments:</b>			

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Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0303601F / MILSATCOM Terminals				Project (Number/Name) 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)			
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2016	FY 2017	FY 2018
In FY2016, FAB-T was transferred from PE 0303601F to PE 0303001F											
Title: PNVC Integrator									9.000	-	-
Description: The Presidential and National Voice Conferencing (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-sciintillation, 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, site installation and checkout activities, training and technical manuals, network transition support, identification of deficiencies in overall PNVC system capability, and logistics support for PNVC components.											
FY 2016 Accomplishments: In FY2016 PNVC Integrator completed end-to-end integration activities for the entire system-level PNVC architecture. Specifically, funding is required for Requirements Traceability Contract, FFRDC (MITRE) support and test activities. The contract will support the Air Force’s integrator role for requirements traceability, system configuration, and test definition for the PNVC architecture.											
Accomplishments/Planned Programs Subtotals									9.000	-	-
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• APAF: BA05, OTHACF: Other Aircraft	32.106	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPAF: BA03, 836700: MILSATCOM Space	60.230	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPAF: BA05, 86190A: Spares and Repair Parts	12.112	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• APAF: BA05: FBLOST	21.784	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• APAF: BA06: Aircraft Spares and Repair Parts	5.540	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDT&E: BA07: PE 0303001F	3.633	42.378	21.152	0.000	21.152	21.862	23.495	17.859	18.480	0.000	148.589

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

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
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### Remarks

Other program funding listed in FY14-15 is only for the FAB-T program. In FY16, all of the listed Other Program Funding in PE 030601F transferred to PE 0303001F.

## D. Acquisition Strategy

In September 2002 the program office awarded Boeing the System Development and Demonstration (SDD) Cost Plus Award Fee (CPAF) contract; in April 2012 the contract was converted to a Firm Fixed Price (FFP). In 2012 the government introduced competition into the acquisition strategy to reduce risk in delivering this capability as well as to drive down production costs. In September 2012 the program office awarded a System Development and Demonstration (SDD) contract to Raytheon, Firm Fixed Price (FFP). To ensure 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 for development and production of FAB-T Command Post Terminals. Production contract options to produce CPT terminals will be exercised after a successful Milestone C.

## E. Performance Metrics

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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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Air Force</b>													<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0303601F / MILSATCOM Terminals				<b>Project (Number/Name)</b> 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)					

  

<b>Product Development (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
FAB-T Development (Prior down-select)	C/FFP	Boeing : Huntington Beach, CA	12.536	0.000		0.000		0.000		0.000		0.000	0.000	12.536	-
FAB-T Development	C/FFP	Raytheon : Marlborough, MA	112.906	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
PNVC Integrator Technical Mission Analysis (FFRDC)	C/CPAF	MITRE : Bedford, MA	0.000	2.197		0.000		0.000		0.000		0.000	0.000	2.197	-
PNVC Integrator Enterprise SE&I	C/CPAF	Aerospace : Los Angeles, CA	0.000	0.450		0.000		0.000		0.000		0.000	0.000	0.450	-
PNVC Integrator	C/FP	Raytheon : TBD	0.000	5.295		0.000		0.000		0.000		0.000	0.000	5.295	-
<b>Subtotal</b>			125.442	7.942		0.000		0.000		0.000		0.000	-	-	-

  

<b>Support (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Engineering DMS (FFRDC)	SS/CPAF	MITRE : Bedford, MA	9.362	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
GFE DMS	MIPR	Various : Various	0.596	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
Engineering DMS	MIPR	Linquest : El Segundo, CA	1.945	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
SW Engineering DMS (FFRDC)	SS/CPAF	SEI : Pittsburgh, PA	0.400	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
Crypto Support DMS	MIPR	NSA : Ft Meade, MD	2.892	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
SATSIM	SS/TBD	MIT Lincoln Labs : Lexington, MA	4.735	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
Depot Activation DMS	PO	517 SMXS : HILL AFB, UT	0.431	0.000		0.000		0.000		0.000		0.000	0.000	0.431	-
<b>Subtotal</b>			20.361	0.000		0.000		0.000		0.000		0.000	-	-	-

  

<b>Remarks</b> SATSIM contract is Cost Reimbursable, it is not in drop-down menu.
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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force												Date: May 2017			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0303601F / MILSATCOM Terminals				Project (Number/Name) 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)					
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Government Test & RTO Support	Various	Various : Various	3.551	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
Developmental Test Support	SS/CPAF	MIT/LL : Bedford, MA	18.827	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
PNVC Integrator Test Support	PO	46 Test Squadron : TBD	0.000	0.700		0.000		0.000		0.000		0.000	0.000	0.700	-
Subtotal			22.378	0.700		0.000		0.000		0.000		0.000	-	-	-
Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Systems Engineering Support	C/CPAF	MITRE : Bedford, MA	5.280	0.000		0.000		0.000		0.000		0.000	0.000	5.280	-
FFRDC SE Support	MIPR	Aerospace : Los Angeles, CA	1.428	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
ETASS (Engineering & Technology Acq Spt Services) (PMA)	C/CPFF	TBD : TBD	2.101	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
PASS (Professional Acq Spt Services) (PMA)	C/CPFF	BTAS : Bever Creek, OH	2.532	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
SCS (Specialized Cost Services) (PMA)	C/CPFF	Tecolote : Bedford, MA	0.000	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
SPO Cost & Indirect (PMA)	Various	Various : Various	1.080	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
PNVC Integrator ETASS	C/CPFF	Various : TBD	0.000	0.358		0.000		0.000		0.000		0.000	0.000	0.358	-
Subtotal			12.421	0.358		0.000		0.000		0.000		0.000	-	-	-
Remarks PASS awarded 2st quarter FY15. ETASS recomplete 4th quarter FY15.															

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Air Force</b>										<b>Date:</b> May 2017			
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	<b>Prior Years</b>	<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	180.602	9.000		0.000		0.000		0.000		0.000	-	-	-
<b>Remarks</b>													



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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force										Date: May 2017									
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303601F / MILSATCOM Terminals					Project (Number/Name) 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)									

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
FAB-T Raytheon Development Contract																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Air Force			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0303601F / MILSATCOM Terminals	<b>Project (Number/Name)</b> 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FAB-T Raytheon Development Contract	1	2016	1	2016

**Note**

Raytheon development contract awarded 4Q FY12.  
Production planning contracts awarded 4Q FY13.