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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force										Date: February 2018		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)					PE 1206760F I Protected Tactical Enterprise Service (PTES)							
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	-	0.000	18.150	51.419	0.000	51.419	105.003	123.841	112.720	56.806	Continuing	Continuing
643726: PTES	-	0.000	18.150	51.419	0.000	51.419	105.003	123.841	112.720	56.806	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Develop the Protected Tactical Enterprise Service (PTES) ground system to provide worldwide, anti-jam, Low Probability of Intercept (LPI) communications for tactical warfighters. PTES will utilize the Protected Tactical Waveform (PTW) to provide anti-jam communications via military and commercial satellite systems for tactical users in all Services. Initially, PTES will utilize the Wideband Global SATCOM (WGS) system and be expanded later to include commercial satellites.

The PTES program is developing a mission management system (MMS), a key management system (KMS) and hub system to enable PTW via transponded WGS satellites, with future extension to commercial SATCOM. PTW modems for user terminals are being developed by the Protected Tactical Service Field Demonstration (PTSFD) and will be separately acquired by each Service and by international partners.

PTES addresses the gap in protected communications capability identified in the Joint Space Communications Layer (JSCL) Initial Capabilities Document (ICD), the Protected Satellite Communications Services (PSCS) Analysis of Alternatives (AoA) and the PSCS AoA Follow-on for Resiliency (PAFR). The PSCS AoA confirmed the validity of tactical user requirements for protected communications. Specific gaps identified that are pertinent to PTES are: protection and connectivity to mobile users operating in a contested environment, and wideband coverage and capacity in concentrated theaters. There is a projected shortfall (i.e. 60-75%) in the needed capacity for protected tactical communications in a contested environment. This gap is especially acute for small, mobile terminals. Secondly, there is a projected shortfall (i.e. 25-40%) in wideband coverage and capacity.

To meet the warfighter requirements for protected tactical MILSATCOM and the capability gaps identified in these studies, RDT&E funding is required for architectural development, acquisition strategy development, system requirements and system trades analysis, and engineering, manufacturing, developing, testing and evaluating PTES systems and segments.

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 Protected Tactical Enterprise Services (PTES) weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 1206392F and 1206398F.						
This 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 environment.						
B. Program Change Summary (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget		0.000	18.150	77.021	0.000	77.021
Current President's Budget		0.000	18.150	51.419	0.000	51.419
Total Adjustments		0.000	0.000	-25.602	0.000	-25.602
• 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		0.000	0.000			
• SBIR/STTR Transfer		0.000	0.000			
• Other Adjustments		0.000	0.000	-25.602	0.000	-25.602
Change Summary Explanation						
FY 2019: -\$25.602M: -\$25.215M to align funding profile to the program office's latest Single Best Estimate, -\$0.387M inflation adjustment						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2017	FY 2018	FY 2019
Title: Acquisition Strategy Development				0.000	7.246	0.000
Description: The JSCL ICD and PSCS AoA defined the need for a more resilient, protected tactical architecture with increased capacity and bandwidth. In accordance with these requirements, the PTES program will develop an acquisition strategy to meet the required capabilities within an acceptable cost and schedule.						
FY 2018 Plans:						
Mature acquisition strategy. Develop documentation required for statutory and regulatory documentation to achieve DoD 5000.02 milestones. Evaluate results of PTSFD testing and incorporate lessons learned.						
FY 2019 Plans:						
FY2019 System Development is now broken out into a new thrust, PTES System Development						
FY 2018 to FY 2019 Increase/Decrease Statement:						

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019
FY2019 decreased compared to FY2018 by \$7.246M. Justification for this decrease is described in plans above.				
Title: Source Selection & Contract Award Description: Competitively award a single contract to develop and field PTES, including declaration of Initial Operational Capability (IOC) and Final Operational Capability (FOC). The contractor will be responsible for developing all PTES segments and performing all system integration, including end-to-end tests of the complete PTES system. FY 2018 Plans: Conduct source selection and award contract for development of PTES. Plan for Integrated Baseline Review with PTES contractor. Continue program office and other related support activities that may include, but are not limited to, studies, technical analysis, etc. FY 2019 Plans: FY2019 System Development is now broken out into a new thrust, PTES System Development FY 2018 to FY 2019 Increase/Decrease Statement: FY2019 decreased compared to FY2018 by \$10.904M. Justification for this decrease is described in plans above.		0.000	10.904	0.000
Title: PTES System Development Description: After competitive contract award, the PTES team will develop a system consisting of three segments: a MMS, a KMS, and Joint Hubs integrated into existing SATCOM gateways. PTES will enable an anti-jam communications capability via PTW over WGS for tactical users in all Services and International Partners. The PTES team will be responsible for developing all PTES segments and performing all system integration, including end-to-end tests of the complete PTES system. FY 2018 Plans: "PTES System Development" effort was previously included in Major Thrust "Source Selection and Contract Award." FY 2019 Plans: Award and Execute the PTES contract. Purchase and Provide Government Furnished Equipment to PTES Contractor. Evaluate results of Protected Tactical Service Field Demonstration (PTSFD) testing and incorporate lessons learned. Continue program office support and other related support activities. 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. FY 2018 to FY 2019 Increase/Decrease Statement:		0.000	0.000	51.419

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C. Accomplishments/Planned Programs (\$ in Millions)							FY 2017	FY 2018	FY 2019		
FY2019 increased compared to FY2018 by \$51.419M. Justification for this increase is described in plans above.											
Accomplishments/Planned Programs Subtotals							0.000	18.150	51.419		
D. Other Program Funding Summary (\$ in Millions)											
Line Item	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
• RDTE 05 PE 1206431F: <i>Advanced EHF MILSATCOM (SPACE)</i>	19.800	-	0.000	-	0.000	0.000	0.000	0.000	-	0.000	19.800
Remarks											
E. Acquisition Strategy The objective of the PTES ground system is to provide an operational anti-jam communications capability via WGS using PTW. The PTES acquisition approach is to competitively award a single contract to develop and field PTES, including declaration of IOC and FOC. The contractor will be responsible for developing all PTES segments (MMS, KMS, and Hub) and performing all system integration, including end-to-end tests of the complete PTES system. The 46th Test Squadron is planned to be the PTES Developmental Test organization and AFOTEC is planned to be the Operational Test organization.											
F. 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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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force												Date: February 2018			
Appropriation/Budget Activity 3600 / 4						R-1 Program Element (Number/Name) PE 1206760F / Protected Tactical Enterprise Service (PTES)				Project (Number/Name) 643726 / PTES					
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
Protected Tactical Enterprise Service System Development	TBD	TBD : TBD	-	-		3.142	Nov 2018	29.259	Dec 2018	-		29.259	Continuing	Continuing	-
Protected Tactical Enterprise Service Other Support	Various	Various : Various	-	-		2.404	Jan 2018	-		-		-	Continuing	Continuing	-
Technical Mission Analysis	MIPR	Aerospace : El Segundo, CA	-	-		3.467	Jan 2018	4.497	Nov 2018	-		4.497	Continuing	Continuing	-
Enterprise SE&I	Various	Various : Various	-	-		4.339	Jan 2018	8.328	Nov 2018	-		8.328	Continuing	Continuing	-
Subtotal			-	-		13.352		42.084		-		42.084	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
Test Planning & Execution DT/OT	Various	Various : Various	-	-		1.700	Jan 2018	2.150	Nov 2018	-		2.150	Continuing	Continuing	-
Subtotal			-	-		1.700		2.150		-		2.150	Continuing	Continuing	N/A
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
FFRDC	MIPR	Aerospace : El Segundo, CA	-	-		1.546	Jan 2018	2.421	Nov 2018	-		2.421	Continuing	Continuing	-
A&AS	Various	Various : Various	-	-		1.452	Jan 2018	4.664	Nov 2018	-		4.664	Continuing	Continuing	-
Other Support	Various	Various : Various	-	-		0.100	Jan 2018	0.100	Oct 2018	-		0.100	Continuing	Continuing	-
Subtotal			-	-		3.098		7.185		-		7.185	Continuing	Continuing	N/A

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			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			-	-		18.150		51.419		-		51.419	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force																Date: February 2018			
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	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
PTES																												
Conduct Source Selection																												
Award Development Contract																												
PTES System Development																												
Milestone B Decision																												
Developmental/Operational Testing (to include Planning)																												
Milestone C Decision																												
IOC																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force			Date: February 2018
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
PTES				
Conduct Source Selection	2	2018	1	2019
Award Development Contract	1	2019	1	2019
PTES System Development	1	2019	4	2023
Milestone B Decision	1	2021	1	2021
Developmental/Operational Testing (to include Planning)	1	2018	4	2023
Milestone C Decision	1	2023	1	2023
IOC	4	2023	4	2023