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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 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 1203176F I Combat Survivor Evader Locator							
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
Total Program Element	-	0.958	29.253	24.967	0.000	24.967	0.946	0.000	0.000	0.000	Continuing	Continuing
654522: CSAR EMD	-	0.958	29.253	24.967	0.000	24.967	0.946	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY2018, PE 0305176F, Combat Survivor Evader Locator (CSEL) efforts were transferred to PE 1203176F (Combat Survivor Evader Locator (CSEL) due to the creation of a new Major Force Program for Space. FY2016 and FY2017 funding is now documented in the exhibits for the 1203176F.

A. Mission Description and Budget Item Justification

The Combat Survivor Evader Locator (CSEL) System provides aircrews with end-to-end global satellite secure emergency communication capability during combat and peace-time flying operations. A hand held radio is required as part of the mandatory aircrew survival gear. CSEL is the Joint Program of Record. CSEL supports four of five Personnel Mission Phases: Report, Locate, Support, and Recover.

A NSA Cryptographic Modernization mandate and the Ultra High Frequency Follow-On satellite constellation are at the end of life and are driving upgrades to 60,000+ hand held radios and base stations. FY18 includes \$24.967M for the development effort to modernize the system to integrate common waveforms, integrate broadcast reception for non-CSEL devices, provide for cryptographic modernization, leverage software defined capabilities based on the FY16 cryptographic study, and to procure intellectual property. This funding will also be used to perform various studies and analysis in support of the CSEL Enterprise.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validate requirements prior to full-rate production.

B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	0.993	29.253	0.785	0.000	0.785
Current President's Budget	0.958	29.253	24.967	0.000	24.967
Total Adjustments	-0.035	0.000	24.182	0.000	24.182
• 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	-0.035	0.000			
• Other Adjustments	0.000	0.000	24.182	0.000	24.182

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<p><u>Change Summary Explanation</u> FY18 \$24.182M for the continuation of the cryptographic modernization effort.</p>												
C. Accomplishments/Planned Programs (\$ in Millions)										FY 2016	FY 2017	FY 2018
<p>Title: CSEL Next Generation Cryptographic Architecture (NGCA)</p> <p>Description: A NSA cryptographic modernization mandate and the Ultra High Frequency Follow-On satellite constellation at end of life are both driving upgrades to 60,000 handheld CSEL rescue radios and base station.</p> <p>FY 2016 Accomplishments: Conducted an abbreviated analysis detailing the development effort required to integrate common waveforms, cryptographic modernization, and leverage software defined solutions.</p> <p>FY 2017 Plans: Modernization of the system to integrate common waveforms, integrate broadcast reception for non-CSEL devices, provide for cryptographic modernization, leverage software defined capabilities based on the FY16 cryptographic study, and to obtain intellectual property. This funding will also be used to perform various studies and analysis in support of the CSEL Enterprise.</p> <p>FY 2018 Plans: Continue cryptographic modernization development and begin testing.</p>										0.958	29.253	24.967
Accomplishments/Planned Programs Subtotals										0.958	29.253	24.967
D. 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	
• P-54: OPAF: BA03: Line Item # 837170: Combat Survivor Evader Locator	0.000	0.000	3.004	0.000	3.004	0.000	0.000	0.000	0.000	0.000	0.000	
Remarks												
E. Acquisition Strategy Every effort will be made to use full and open competition and evolutionary acquisition strategies.												
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: FY 2018 Air Force												Date: May 2017			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 1203176F / Combat Survivor Evader Locator				Project (Number/Name) 654522 / CSAR EMD					
Product Development (\$ 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
Crypto Modernization - HW/SW Development	SS/CPIF	The Boeing Company : Huntington Beach, CA	-	0.000	Apr 2016	28.053	Feb 2017	22.315	Feb 2018	0.000		22.315	0.000	50.368	-
Subtotal			-	0.000		28.053		22.315		0.000		22.315	0.000	50.368	-
Remarks Adjusted by \$0.072 for inflation per PEM's request 6Dec16.															
Support (\$ 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
Subtotal			-	-		-		-		-		-	-	-	-
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
Crypto Modernization Developmental Testing	SS/CPIF	Then Boeing Company : Huntington Beach, CA	-	0.000		0.000		1.452	Feb 2018	0.000		1.452	Continuing	Continuing	-
Subtotal			-	0.000		0.000		1.452		0.000		1.452	-	-	-
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
Advisory & Assistance Services	C/Various	Various : Hill AFB, UT	-	0.363	Jan 2016	0.400	Jan 2017	0.400	Jan 2018	0.000		0.400	Continuing	Continuing	-

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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	C/Various	Various : Hill AFB, UT	-	0.595	Jan 2016	0.800	Jan 2017	0.800	Jan 2018	0.000		0.800	Continuing	Continuing	-
Subtotal			-	0.958		1.200		1.200		0.000		1.200	-	-	-

	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	0.958	29.253	24.967	0.000	24.967	-	-	-

Remarks

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-4, RDT&E Schedule Profile: FY 2018 Air Force			Date: May 2017		
Appropriation/Budget Activity 3600 / 5			R-1 Program Element (Number/Name) PE 1203176F / <i>Combat Survivor Evader</i> <i>Locator</i>		
			Project (Number/Name) 654522 / <i>CSAR EMD</i>		

	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
Crypto Modernization Analysis of Alternatives (AoA)																												
Crypto Modernization Development																												
Crypto Modernization Test & Evaluation (T&E)																												
Crypto Modernization Fielding																												

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force			Date: May 2017
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1203176F / <i>Combat Survivor Evader Locator</i>	Project (Number/Name) 654522 / <i>CSAR EMD</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Crypto Modernization Analysis of Alternatives (AoA)	3	2016	4	2016
Crypto Modernization Development	2	2017	4	2018
Crypto Modernization Test & Evaluation (T&E)	3	2018	4	2019
Crypto Modernization Fielding	1	2019	1	2020