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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force **Date:** February 2015

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0308699F / <i>Shared Early Warning (SEW)</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	1.060	1.157	0.853	-	0.853	1.429	1.382	1.262	1.285	Continuing	Continuing
674838: <i>Shared Early Warning System</i>	-	1.060	1.157	0.853	-	0.853	1.429	1.382	1.262	1.285	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Shared Early Warning System (SEWS) is the result of Presidential foreign policy initiatives which began in 1996. The SEWS continues to provide Theater Combatant Commanders and foreign nation customers direct operational benefit by improving the architectural design and equipment thereby providing enhanced mission capabilities (i.e., expanded coverage, integration with active defense systems, and radar integration). Foreign customer arrangements are negotiated with individual countries on a bilateral basis to provide selected region-specific missile warning information. SEWS Integration and Test facility is kept current by enhancing systems to improve analysis of real world events. To enhance mission capability the SEWS program tests the Integrated Broadcast Service (IBS) migration to Common Interactive Broadcast (CIB), mandatory crypto upgrades, SEWS integration with various radar systems, and the transition to "coalition-based" warning.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

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.

The FY2016 funding request was reduced by \$0.362 million to account for the availability of prior execution balances.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	1.060	1.212	1.221	-	1.221
Current President's Budget	1.060	1.157	0.853	-	0.853
Total Adjustments	-	-0.055	-0.368	-	-0.368
• Congressional General Reductions	-	-0.055			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.368	-	-0.368

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
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<p>Title: Shared Early Warning System (SEWS)</p> <p>Description: Development of SEWS common architecture and SEWS initiatives as identified by theater commanders.</p> <p>FY 2014 Accomplishments:</p> <ul style="list-style-type: none"> - Continued to investigate and integrate Unified Combatant Command (COCOM) validated requirements and system enhancements (e.g., Radiant Mercury (RM)) - Continued to evaluate alternative solutions and approaches for integrated infrared/radar architectures. Tasks included but were not limited to: SEW-Radar (SEW-R) test and fielding; integration and test of redesign to improve and increase performance capabilities; and updating the rule set in the Cross Domain Solutions (CDS) to comply with data disclosure. - Conducted SEW-R developmental work, including conducting studies to evaluate upgrades to SEW-R. Constructive results from kinematic correlator testing were provided to the Theater Missile Warning (TMW) Configuration Control Board (CCB) and to Defense Information Systems Agency (DISA) for fix actions. - Designed the next phase of the Common Message Format (CMF) specification implementation, including development of Joint Range Extension Application Protocol (JREAP) B implementation to handle CMF. - Continued the development analysis and test of new methods to increase system accuracy. With focus upon source data and radar integration. - Completed development and testing of the Secondary Distribution Facility (SDF) capability including initial integration with CENTCOM (Central Command) Partner Network (CPN). - Completed Force Protection Tiered Notification System (FPTNS) development and tested/integrated Phase Two, the "one-to-many". - Continued Tactical Display Processor (TDP) Global Command & Control System-Joint (GCCS-J) development including, the TDP/GCCS 3D/Agile Client, and testing of changes for CMF. - Completed RM development, testing and integration of the "P3" rule set; continued development of the CMF capability. <p>FY 2015 Plans:</p> <ul style="list-style-type: none"> - Continue to investigate and integrate COCOM validated requirements and system enhancements (e.g., Radiant Mercury) - Continue to evaluate alternative solutions and approaches for integrated infrared/radar architectures. Tasks will include but not limited to: SEW-R test and fielding; integration and test of redesign to improve and increase 	1.060	1.157	0.853	-	0.853
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<p>performance capabilities; and updating the rule set in the Cross Domain Solutions (CDS) to comply with data disclosure.</p> <ul style="list-style-type: none"> - Continue SEW-Radar developmental work. Work will continue on the kinematic correlator development and test; and completion of radar to CDF design and testing. - Continue design, test SEWS architecture for CMF and CIB system-wide, which includes design impacts to RM, Radios, GCCS, SEWD. - Continue development and testing of new methods to increase system accuracy. - Complete FPTNS Phase Two "one-to-many"; including CDS fielding and testing of the capability in the CENTCOM architecture. - Begin development of FPTNS Phase Three, "auto load". - Test revisions of 3D/Agile Client for TDP (GCCS-J). - Design and test the Deployable SEWS Suite (DSS). - Continue RM development including but not limited to CMF, V 6.0 and "exclusion". <p>FY 2016 Base Plans:</p> <ul style="list-style-type: none"> - Continue to investigate and integrate COCOM validated requirements and system enhancements (e.g., Radiant Mercury) - Continue to evaluate alternative solutions and approaches for integrated infrared/radar architectures. Tasks will include but not limited to: SEW-R test and fielding; integration and test of redesign to improve and increase performance capabilities; and updating the rule set in the Cross Domain Solutions (CDS) to comply with data disclosure. - Continue SEW-R developmental work. - Continue design, test, implementation of SEWS architecture for CMF and CIB, which includes impacts to RM, Radios, GCCS, SEWD. - Continue development and testing of new methods to increase system accuracy. - Test revisions of enhancements not limited to 3D/Agile Client for TDP (GCCS-J). - Complete design of the Deployable SEWS Suite (DSS). - Continue RM development including but not limited to CMF, JREAP B, Real Time, Depupe. <p>FY 2016 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	1.060	1.157	0.853	-	0.853

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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF: BA07: Line Item # 838010: <i>Shared Early Warning Acquisition</i>	0.276	0.329	0.220	-	0.220	0.407	0.391	0.351	0.357	Continuing	Continuing

Remarks

E. Acquisition Strategy

The acquisition strategy builds on existing capabilities using evolutionary acquisition to modernize and sustain SEWS.

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 2016 Air Force												Date: February 2015				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0308699F / Shared Early Warning (SEW)				674838 / Shared Early Warning System								
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
System Development	C/CPIF	Lockheed Martin : Colorado Springs, CO	-	0.249	Oct 2013	0.649	Oct 2014	0.340	Oct 2015	-		0.340	Continuing	Continuing	-	
Integration and Modernization	MIPR	US Navy : San Diego, CA	-	0.487	Mar 2014	0.197	Mar 2015	0.191	Mar 2016	-		0.191	Continuing	Continuing	-	
Additional Product Development	MIPR	Various : Colorado Springs, CO	-	0.090	Sep 2014	0.079	Sep 2015	0.081	Sep 2016	-		0.081	Continuing	Continuing	-	
Subtotal			-	0.826		0.925		0.612		-		0.612	-	-	-	
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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			-	-		-		-		-		-	-	-	-	
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	SS/CPFF	MITRE : Colorado Springs, CO	-	0.160	Nov 2013	0.160	Nov 2014	0.160	Nov 2015	-		0.160	Continuing	Continuing	-	
Program Management Administration	C/Various	Various : Colorado Springs, CO	-	0.074	May 2014	0.072	May 2015	0.081	May 2016	-		0.081	Continuing	Continuing	-	
Subtotal			-	0.234		0.232		0.241		-		0.241	-	-	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force								Date: February 2015			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0308699F / Shared Early Warning (SEW)			Project (Number/Name) 674838 / Shared Early Warning System					
	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals	-	1.060	1.157	0.853	-	0.853	-	-	-		

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0308699F / <i>Shared Early Warning (SEW)</i>	Project (Number/Name) 674838 / <i>Shared Early Warning System</i>

	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
SEW-Radar (SEW-R) Centralized Distribution Facility (CDF) Design/Development	█	█																										
SEW-R CDF Integration/Test		█	█	█																								
SEW-R Correlation Design/Development	█	█	█	█																								
SEW-R Correlation Integration/Test							█	█																				
Common Interactive Broadcast (CIB)/Common Message Format (CMF) Radios Integration/Test			█	█																								
CMF/CIB Radios Integration/Test							█	█																				
CMF/CIB RM Design/Development	█	█	█	█																								
CMF/CIB RM Integration/Test							█	█																				
CMF/CIB RM Follow on Design/Development															█	█												
CMF/CIB RM Follow on Integration/Test																							█	█				
CMF/CIB Global Command and Control System (GCCS) Design/Development	█	█	█	█																								
CMF/CIB GCCS Integration/Test							█	█																				
CMF/CIB Combined Architecture Integration/Test			█	█			█	█																				
Accuracy Improvements Design/Development	█	█	█	█																								
Accuracy Improvements Integration/Test			█	█			█	█																				
Accuracy Improvements Design/Development (1)											█	█																
Accuracy Improvement Integration/Test (1)															█	█												
CENTCOM (Central Command) Partner Network (CPN) Intergration/Test	█	█	█	█																								

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force **Date:** February 2015

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0308699F / Shared Early Warning (SEW)	Project (Number/Name) 674838 / Shared Early Warning System
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	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Secondary Distribution Facility (SDF) Design/Development	■																											
SDF Integration/Test		■	■	■																								
Force Protection Tiered Notification System (FPTNS) Phase 3 Design/Development								■	■	■	■	■																
FPTNS Phase 3 Integration/Test														■	■	■												
Tactical Display Processor (TDP) Design/Development	■	■	■	■																								
TDP Integration/Testing							■	■	■																			
Deployable SEWS Suite (DSS) Design/Development							■	■	■	■																		
DSS Integration/Test										■	■	■																
DSS Follow On Integration/Test																										■	■	■
DSS Follow On Design/Development																		■	■	■								
Radiant Mercury (RM) Joint Range Extension Application Protocol (JREAP) B Design/Development				■	■	■	■																					
RM JREAP B Integration/Testing							■	■																				
RM Real Time Filter Design/Development							■	■	■	■																		
RM Real Time Filter Integration/Testing											■	■																
RM Deduping Design/Development											■	■	■	■														
RM Deduping Integration/Testing														■	■													
RM Network Outputs Design/Development														■	■	■	■											
RM Network Outputs Integration/Testing																										■	■	■

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0308699F / Shared Early Warning (SEW)	Project (Number/Name) 674838 / Shared Early Warning System

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SEW-Radar (SEW-R) Centralized Distribution Facility (CDF) Design/Development	1	2014	2	2014
SEW-R CDF Integration/Test	2	2014	3	2015
SEW-R Correlation Design/Development	1	2014	2	2015
SEW-R Correlation Integration/Test	3	2015	3	2016
Common Interactive Broadcast (CIB)/Common Message Format (CMF) Radios Integration/Test	4	2014	1	2015
CMF/CIB Radios Integration/Test	4	2015	2	2016
CMF/CIB RM Design/Development	1	2014	2	2015
CMF/CIB RM Integration/Test	2	2015	4	2015
CMF/CIB RM Follow on Design/Development	2	2018	2	2019
CMF/CIB RM Follow on Integration/Test	3	2019	4	2019
CMF/CIB Global Command and Control System (GCCS) Design/Development	1	2014	1	2015
CMF/CIB GCCS Integration/Test	2	2015	4	2015
CMF/CIB Combined Architecture Integration/Test	4	2014	4	2015
Accuracy Improvements Design/Development	1	2014	3	2014
Accuracy Improvements Integration/Test	4	2014	4	2015
Accuracy Improvements Design/Development (1)	4	2015	1	2018
Accuracy Improvement Integration/Test (1)	1	2018	2	2019
CENTCOM (Central Command) Partner Network (CPN) Intergration/Test	1	2014	4	2014
Secondary Distrubition Facility (SDF) Design/Development	1	2014	1	2014
SDF Integration/Test	2	2014	1	2015
Force Protection Tiered Notification System (FPTNS) Phase 3 Design/Development	3	2015	1	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force **Date:** February 2015

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0308699F / Shared Early Warning (SEW)	Project (Number/Name) 674838 / Shared Early Warning System
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Events	Start		End	
	Quarter	Year	Quarter	Year
FPTNS Phase 3 Integration/Test	2	2017	4	2017
Tactical Display Processor (TDP) Design/Development	1	2014	2	2015
TDP Integration/Testing	2	2015	1	2016
Deployable SEWS Suite (DSS) Design/Development	1	2015	1	2016
DSS Integration/Test	1	2016	4	2016
DSS Follow On Integration/Test	2	2019	4	2019
DSS Follow On Design/Development	2	2018	2	2019
Radiant Mercury (RM) Joint Range Extension Application Protocol (JREAP) B Design/Development	4	2014	3	2015
RM JREAP B Integration/Testing	3	2015	4	2015
RM Real Time Filter Design/Development	3	2015	3	2016
RM Real Time Filter Integration/Testing	4	2016	1	2017
RM Deduping Design/Development	2	2016	2	2017
RM Deduping Integration/Testing	3	2017	4	2017
RM Network Outputs Design/Development	2	2017	2	2018
RM Network Outputs Integration/Testing	3	2018	4	2018