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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 0604735F I Combat Training Ranges							
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	-	11.368	77.409	87.350	0.000	87.350	70.361	18.682	0.000	23.968	Continuing	Continuing
652286: Combat Training Range Equipment	-	11.368	77.409	87.350	0.000	87.350	70.361	18.682	0.000	23.968	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 05 PE 0604735F, project 652286, Advanced Radar Threat System (ARTS V3) Development, is a new start.
This program, BA 05 PE 0604735F, project 652286, Advanced Radar Threat System (ARTS V4) Development, is a new start.
In CY17 Digital Threat Relevancy was a new start.

A. Mission Description and Budget Item Justification

The Combat Training Range (CTR) program provides equipment and support to Air Force units and combat training ranges for electronic warfare (EW) mission testing, training, and evaluation of aircrews, as well as operational testing of weapon systems and tactics under simulated combat conditions. This program provides funding for the development and integration of electronic warfare training capabilities to include Air Combat Training Systems (ACTS), threat emitters, advanced radar threat systems, communication jammers, instrumentation equipment/systems, and evolutionary upgrades to facilitate standardization and integration across all platforms to include coalition and 5th Generation aircraft. The Advanced Radar Threat Systems (ARTS) programs develop, design, build and test threat system simulators based on advanced foreign fielded surface-to-air missile (SAM) radar threat systems. ARTS are designed to be used at Department of Defense (DoD) training ranges for 4th and 5th generation aircrew training and tactics development to increase combat effectiveness and aircrew survivability by training aircrews to engage or defend against an advanced SAM threat before encountering it in actual combat to stress their tactics, techniques and procedures. The ARTS-Variant 1 (ARTS-V1) is focused on long-range, re-locatable radar threat systems. ARTS Variant 2 (ARTS-V2) is focused on mobile, short/medium-range radar threat systems. ARTS-V3 will establish a long range, high power SAM radar simulator. ARTS-V4 will establish a highly mobile, tactical modern threat simulator. The ARTS program supports early research, studies, technology development, and planning for next generation threat systems that challenge the Air Force's asymmetric advantage. The ARTS programs also fund development of high fidelity surrogate targets matching simulated threat systems, to stress 5th generation sensor fusion capabilities. The Legacy Range Threat Systems Low Cost Mod (LRTSLCM) effort funds development of modifications for Legacy Range Threat Systems to provide continued threat relevancy and enhanced systems capabilities. Legacy Systems include the Multiple Threat Emitter System (MUTES), the Miniature Multiple Threat Emitter System (Mini-MUTES), the Modular Threat Emitter (MTE) system, the Tactical Radar Threat Generator (TRTG) system, the Band Simulator, and the Unmanned Modular Threat Emitter (UMTE) system, and legacy Joint Threat Emitter (JTE) systems. Enhancements focus on upgrading threat systems to match fielded modifications for foreign threat systems faced by combat aircrews. The Common Electronic Attack Receiver (CEAR) provides reactive training and enhanced debriefs using legacy threats. The Digital Threat Relevancy (DTR) effort is focused on upgrading the Band Simulator and other legacy emitters, with modern electronics to improve threat relevance and sustainability. The Double Digit Threat Emitter (DDTE) effort will leverage JTE to provide a lower cost EW simulator, enabling greater on-range threat density of advanced SAM radars. Lastly, this program funds ongoing analyses, studies, risk reduction efforts, and/or technology development to enhance range systems, such as combat training range equipment integration into a blended training (Live, Virtual, Constructive) architecture, communication and GPS jammers, weapon drop scoring systems and infrastructure networks. These enhancements add a critical dimension to exercises and optimize warfighter training.

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Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)		R-1 Program Element (Number/Name) PE 0604735F I Combat Training Ranges				
This program is in Budget Activity 5. Legacy/fielded portions (LRTSCM, JTE) of the portfolio are past Milestone C. The ARTS-V1 Program will enter at Milestone C, leveraging a Navy program's system development and demonstration. ARTS-V2 will pass Milestone B in FY17. ARTS-V3 and -V4 and DTR will enter at Milestone B.						
B. Program Change Summary (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget		11.795	77.409	53.485	0.000	53.485
Current President's Budget		11.368	77.409	87.350	0.000	87.350
Total Adjustments		-0.427	0.000	33.865	0.000	33.865
• 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		-0.427	0.000			
• Other Adjustments		0.000	0.000	33.865	0.000	33.865
Change Summary Explanation						
FY2018 funding request was increased \$33.865 million to initiate development of a long range advanced radar threat system training simulator and to restructure the short/medium advanced radar threat system to be consistent with the current development schedule.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2016	FY 2017	FY 2018
Title: P5 Combat Training System (CTS)				3.376	5.221	0.499
Description: P5 CTS funding supports Air Combat Training Systems (ACTS) capabilities and includes the development, integration and testing of future software/hardware upgrades, aircraft/pod integration, upgrades for range applications, and associated studies. Additionally, funding supports efforts to enable initial training interoperability with 5th Generation aircraft via Ground Subsystem (GS) decryption of secure (encrypted) Time, Space Position Information (TSPI), weapon simulation, and other training data.						
FY 2016 Accomplishments: Funding supported development, integration, and testing of software/hardware upgrades, aircraft/pod integration, and upgrades for range applications, and pod service life extension analysis and studies.						
FY 2017 Plans:						

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C. Accomplishments/Planned Programs (\$ in Millions) P5CTS funding will support development, integration, and testing of ongoing and future software/hardware upgrades, aircraft/pod integration, and upgrades for range applications. Funding also supports pod capability development for operation in a GPS denied environment. FY 2018 Plans: P5 CTS funding will support development, integration and testing of future software/hardware upgrades, aircraft/pod integration, and upgrades for range applications.		FY 2016	FY 2017	FY 2018
Title: Legacy Range Threat Systems Description: The Legacy Range Threat Systems Low Cost Mod (LRTSLCM) effort develops, integrates, and tests modifications to extend the systems' service life through threat relevancy and enhanced systems capabilities. Legacy Systems include the Multiple Threat Emitter System (MUTES), the Miniature Multiple Threat Emitter System (Mini-MUTES), the Modular Threat Emitter (MTE) system, the Tactical Radar Threat Generator (TRTG) system, the Band Simulator, and the Unmanned Modular Threat Emitter (UMTE) system. It also covers legacy Joint Threat Emitter systems. The Common Electronic Attack Receiver (CEAR) modification enables radar threat emitters to realistically react to electronic counter measures, expendable counter measures, maneuvers, and terrain masking initiated by aircrew during electronic combat training for simulated penetrations of hostile airspace. CEAR also enables recording of aircrew reactions for playback and debriefing. FY 2016 Accomplishments: N/A FY 2017 Plans: Funding will be used to integrate the current CEAR design onto the Mini-MUTES system while maintaining commonality with previously integrated platforms (JTE, UMTE). Funding will be used to study enhancements to legacy systems capable of providing advanced SAM threats through integration of COTS or previously developed technology into existing systems. FY 2018 Plans: Funding will be used to complete integration of the current CEAR design onto the Mini-MUTES system.		0.000	8.789	4.128
Title: Advanced Radar Threat Systems (ARTS V1) Development Description: Title: Advanced Radar Threat Systems (ARTS V1) Development Description: The Advanced Radar Threat System Variant 1 (ARTS-V1) program will develop, design, build and test threat system simulators based on advanced strategic, long-range, re-locatable foreign fielded surface-to-air missile (SAM) radar threat systems. ART-V1 will leverage an existing DoD test resource development program to reduce non-recurring development cost, schedule risk, and promote range interoperability between test and training. ARTS-V1 is designed to be used at Department of Defense (DoD) training ranges for aircrew training and tactics development to increase combat effectiveness and aircrew survivability by		5.000	11.000	14.050

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C. Accomplishments/Planned Programs (\$ in Millions) training aircrews to engage or defend against an advanced SAM threat before encountering it in actual combat. Various aircraft platforms may train against ARTS-V1, but the most stringent requirements placed on ARTS-V1 design come from fifth generation aircraft capabilities. Additionally, development of a high-fidelity surrogate target, ongoing analyses, studies, and risk reduction efforts will focus on integrating ARTS and other systems into regional range and live-virtual-constructive architectures.		FY 2016	FY 2017	FY 2018
FY 2016 Accomplishments: ARTS V1 and V2 were the same Major Thrust in the FY16 PB; but have been broken out to provide greater visibility. ARTS-V1 funding supported risk reduction, Milestone C preparation, Engineering and Manufacturing Development (EMD) contract award (as an option on the Navy Closed Loop PESA (Passive Electronic Scanned Array) Simulator (CLPS) contract), Production Representative Article (PRA) material and development, and all acquisition efforts required for development, integration, and testing of ARTS-V1. Additionally, funding supported ongoing analyses and studies focused on integrating ARTS and other systems into a regional range architecture with live-virtual-constructive capabilities.				
FY 2017 Plans: ARTS-V1 funding supports risk reduction, Milestone C preparation, contract award (CLPS option), Production Representative Article (PRA) material and development, and all acquisition efforts required for development, integration, and testing of ARTS-V1. Additionally, funding supports ongoing analyses and studies focused on integrating ARTS-V1 and other systems into regional range and a Live Virtual Constructive architectures.				
FY 2018 Plans: ARTS-V1 funding supports risk reduction, pre-solicitation for production contract, Milestone C preparation, Production Representative Article (PRA) development, and all acquisition efforts required for development, integration, and testing of ARTS-V1.				
Title: Advanced Radar Threat System (ARTS V2) Development Description: The Advanced Radar Threat System-Variant 2 (ARTS-V2) Program will develop, design, build and test a threat system simulator based on an advanced tactical, mobile, short/medium range foreign fielded surface-to-air missile (SAM) radar threat system. ARTS-V2 is designed to be used at Department of Defense (DoD) training ranges for aircrew training and tactics development to increase combat effectiveness and aircrew survivability by training aircrews to engage or defend against an advanced SAM threat before encountering it in actual combat. Various aircraft platforms may train against ARTS-V2, but the most stringent requirements placed on ARTS-V2 design come from fifth generation aircraft capabilities. Additionally, ongoing analyses, studies, and risk reduction efforts will focus on integrating ARTS-V2 and other systems into a Live Virtual Constructive architecture.		2.992	51.949	57.762
FY 2016 Accomplishments:				

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018
ARTS-V2 funding supported preparation for Milestone B, solicitation, and source selection through pre-contract award. Additionally, funding supported ongoing analyses and studies focused on integrating ARTS into a Live Virtual Constructive architecture. FY 2017 Plans: ARTS-V2 funding supports Milestone B and contract award. The contract is being awarded for Engineering and Manufacturing Development (EMD), to include development, integration and testing. Additionally funding is being used to support ongoing analyses and studies focused on integrating ARTS into regional range and a Live Virtual Constructive architectures. FY 2018 Plans: ARTS-V2 funding will be used to support continuation of the Engineering and Manufacturing Development (EMD) contract for Production Representative Article (PRA) development through programmatic and technical reviews and build of the PRA. Funding also will support integration and testing. Additionally funding will support ongoing analyses and studies focused on integrating ARTS into regional range and a Live Virtual Constructive architectures.				
Title: Advanced Radar Threat System (ARTS V3) Development Description: The Advanced Radar Threat System-Variant 3 (ARTS-V3) Program will develop, design, build and test an advanced surface-to-air threat simulation systems replicating current strategic/tactical threat (s) at the fidelity necessary to stress current EW systems, 5th and 6th generation air platform engagements and be integrated into a future CAF LVC system. ARTS-V3 will provide an A2/AD environment for CAF test and training with a highly reactive threat systems that provides immediate feedback to aircrews. The ART-V3 system will create a relevant combat training threat system that is dynamic and reconfigurable to represent a modern, dynamic adversary force. FY 2016 Accomplishments: N/A FY 2017 Plans: N/A FY 2018 Plans: ARTS-V3 funding will establish program foundation to include intelligence & requirements support, early research, studies, support technology maturation, and planning to support a milestone B decision. Funding will be used to support intelligence data to ensure emulation of the real world system is relevant and realistic.		0.000	0.000	4.911
Title: Advanced Radar Threat System (ARTS V4) Development Description: The Advanced Radar Threat System-Variant 4 (ARTS-V4) Program will develop, design, build and test a modern surface-to-air threat simulation system(s) replicating current tactical highly mobile threats at the fidelity necessary to stress current		0.000	0.000	4.000

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C. Accomplishments/Planned Programs (\$ in Millions) EW systems, 5th and 6th generation air platform engagements and be integrated into a future CAF LVC system. ARTS-V4 will leverage an existing DoD training resource development program to reduce non-recurring development cost, schedule risk, and promote range interoperability between test and training. ARTS-V4 will provide an A2/AD environment for CAF test and training with a highly reactive threat systems that provides immediate feedback to aircrews. The ART-V4 system will create a relevant combat training threat system that is dynamic and reconfigurable to represent a dynamic adversary force. FY 2016 Accomplishments: N/A FY 2017 Plans: N/A FY 2018 Plans: ARTS-V4 funding will establish program foundation to include requirements, intelligence support, early research, studies, support technology maturation, and planning to support a milestone B decision. Funding will also be used to support intelligence data to ensure emulation of the real world system is relevant and realistic.		FY 2016	FY 2017	FY 2018
Title: Digital Threat Relevancy Description: Digital Threat Relevancy will conduct RDT&E to modernize the Range Threat family of systems. Foreign fielded surface to air (SAM) threat systems have undergone major modernization programs to replace aging analog technology with modern digital electronics. This program requires the development of digital electronics upgrades to provide realistic electronic warfare training to combat aircrews. This effort will improve threat fidelity (ensuring threat faithful RF emissions), increase reliability, maintainability, supportability, system mobility, and support remote operations with Digital Integrated Air Defense Systems (DIADS). This effort supports warfighter development of new tactics, techniques, and procedures in a relevant, realistic combat environment. FY 2016 Accomplishments: N/A FY 2017 Plans: Digital Threat Relevancy funding will support preparation for Milestone B, solicitation, and source selection through pre-contract award to design and build a prototype of a Mobile MPS-T1 threat system, as a first step in upgrading aging threat systems to replicate modernized foreign threat systems. Efforts will focus on replacing analog technology with digital electronics in both the control and emitter subsystems of the MPS-T1 threat system. Additionally, funding will support ongoing analyses and studies		0.000	0.450	2.000

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C. Accomplishments/Planned Programs (\$ in Millions)										FY 2016	FY 2017	FY 2018
focused on integrating MPS-T1 and other legacy emitters into a Live Virtual Constructive architecture and integration of COTS technology to upgrade to digital threat capabilities.												
FY 2018 Plans: Digital Threat Relevancy funding will support preparation for Milestone B, solicitation, and source selection through Engineering and Manufacturing Development (EMD) contract award to design and build a prototype of a Mobile MPS-T1 threat system, as a first step in upgrading aging threat systems to replicate modernized foreign threat systems. Efforts will focus on replacing analog technology with digital electronics in both the control and emitter subsystems of the MPS-T1 threat system. Funding will be used to study enhancements to legacy systems capable of providing advanced SAM threats through integration of COTS or previously developed technology into existing systems.												
Accomplishments/Planned Programs Subtotals										11.368	77.409	87.350
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	
• OPAF: BA03: Line Item #	28.106	34.850	115.198	0.000	115.198	152.630	244.174	201.495	215.380	Continuing	Continuing	
834190: <i>Combat Training Ranges</i>												
• OPAF: BA05: Line Item #	0.101	5.930	15.988	0.000	15.988	5.569	0.693	0.705	0.718	Continuing	Continuing	
861900: <i>Spares and Repair Parts</i>												
• APAF: BA07: Line Item #	0.000	1.662	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing	
000075: <i>Other Production Charges</i>												
• APAF: BA06: Line Item #	1.995	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing	
000999: <i>Initial Spares/Repair Parts</i>												
Remarks												
E. Acquisition Strategy The acquisition strategy is competition focused, with both cost plus and fixed price contracts.												
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 0604735F / Combat Training Ranges				Project (Number/Name) 652286 / Combat Training Range Equipment					
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
Advanced Radar Threat System Variant 3 (ARTS-V3) Development	MIPR	Various : Various	-	0.000		0.000		0.080	Dec 2017	0.000		0.080	Continuing	Continuing	-
Advanced Radar Threat System-Variant 1 (ARTS-V1) Development	Various	Various : Hill AFB, UT	-	4.580	Dec 2016	10.190	Mar 2017	14.015	Mar 2018	0.000		14.015	Continuing	Continuing	-
Advanced Radar Threat System-Variant 2 (ARTS-V2) Development	C/Various	Not specified. : HILL AFB, UT	-	2.017	Sep 2016	46.819	Apr 2017	57.563	Jun 2018	0.000		57.563	Continuing	Continuing	-
Advanced Radar Threat System-Variant4 4 (ARTS-V-4) Development	Various	Various : Hill AFTB, UT	-	0.000		0.000		0.500	May 2018	0.000		0.500	Continuing	Continuing	-
Legacy System Improvements	Various	Not specified. : Hill AFB, UT	-	0.000		7.370	May 2017	4.108	May 2018	0.000		4.108	Continuing	Continuing	-
JSF Encrypted Pass-Through Development (P5CTS)	Various	Various : Various	-	0.883	Oct 2016	1.000	Mar 2017	0.000		0.000		0.000	Continuing	Continuing	-
Future Block Upgrades (P5CTS)	Various	Various : Various	-	0.000		2.021	Jun 2017	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	7.480		67.400		76.266		0.000		76.266	-	-	
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
AFLCMC/HBZC, Hill AFB (Direct Msn Support)	Various	Various : Various	-	0.350	Jun 2016	2.750	May 2017	8.446	May 2018	0.000		8.446	Continuing	Continuing	-
AFLCMC/EBYC, Eglin AFB - Direct Msn Spt	Various	TBD : TBD	-	1.692	Oct 2016	0.739	Mar 2017	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	2.042		3.489		8.446		0.000		8.446	-	-	-

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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 0604735F / <i>Combat Training Ranges</i>				Project (Number/Name) 652286 / <i>Combat Training Range Equipment</i>				

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
P5CTS Flight Test, 46 Test Wing	Various	Eglin AFB : FL	-	0.000	Sep 2016	0.132	Mar 2017	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.000		0.132		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
AFLCMC/HBZC, Hill AFB (PMA)	Various	Various : Hill AFB, UT	-	1.045	Sep 2016	5.059	May 2017	2.139	May 2018	0.000		2.139	Continuing	Continuing	-
AFLCMC/EBYC (PMA/ A&AS)	C/FFP	Jacobs/Oasis/ Odyssey : Eglin AFB, FL	-	0.801	Mar 2016	1.329	Mar 2017	0.499	Mar 2018	0.000		0.499	Continuing	Continuing	-
Subtotal			-	1.846		6.388		2.638		0.000		2.638	-	-	-

	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		-	11.368		77.409		87.350		0.000	87.350	-	-	-

Remarks

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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 0604735F / Combat Training Ranges

Project (Number/Name)

652286 / Combat Training Range
Equipment

	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
P5CTS Development																												
-- JSF Encrypted Pass-Through																												
-- Future Block Upgrades																												
JTE S/W Development																												
Advanced Radar Threat System Variant 1(ARTS-V1) EMD Phase																												
-- Develop First Article (PRA)																												
-- First Article Development Testing																												
-- Milestone C																												
Advanced Radar Threat System Variant 2 (ARTS-V2) EMD Phase																												
-- ARTS-V2 MilestoneB																												
-- ARTS-V2 Contract																												
-- ARTS-V2 PDR																												
-- ARTS-V2 CDR																												
-- ARTS-V2 DT-E and OT-E																												
-- ARTS-V2 Milestone C																												
Advanced Radar Threat System Variant 3 (ARTS-V3) EMD Phase																												
--ARTS-V3 Pre-milestone B Activities																												
-- ARTS-V3 Milestone B																												
-- ARTS-V3 EMD contract																												
Legacy RTS CEAR Development																												
-- CEAR Mini-MUTES Development and Integration																												

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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 0604735F / Combat Training Ranges								Project (Number/Name) 652286 / Combat Training Range Equipment																			
										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
Legacy RTS Digital Threat Relevance																																					
-- Pre-Development Analysis																																					
-- Control System Development																																					
-- Emitter System Development																																					
Advanced Radar Threat System Variant 4 (ARTS-V4) Pre-milestone B																																					
ARTS-V4 Milestone B																																					
ARTS-V4 Development																																					

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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 0604735F / <i>Combat Training Ranges</i>	Project (Number/Name) 652286 / <i>Combat Training Range Equipment</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
P5CTS Development	1	2016	4	2020
-- JSF Encrypted Pass-Through	1	2016	4	2017
-- Future Block Upgrades	3	2017	4	2020
JTE S/W Development	1	2016	3	2016
Advanced Radar Threat System Variant 1(ARTS-V1) EMD Phase	1	2017	4	2022
-- Develop First Article (PRA)	3	2017	4	2020
-- First Article Development Testing	3	2019	2	2020
-- Milestone C	3	2022	3	2022
Advanced Radar Threat System Variant 2 (ARTS-V2) EMD Phase	1	2016	4	2022
-- ARTS-V2 MilestoneB	3	2017	3	2017
-- ARTS-V2 Contract	3	2017	3	2017
-- ARTS-V2 PDR	3	2018	3	2018
-- ARTS-V2 CDR	2	2019	2	2019
-- ARTS-V2 DT-E and OT-E	3	2019	1	2021
-- ARTS-V2 Milestone C	1	2021	1	2021
Advanced Radar Threat System Variant 3 (ARTS-V3) EMD Phase	1	2018	4	2021
--ARTS-V3 Pre-milestone B Activities	1	2018	4	2020
-- ARTS-V3 Milestone B	4	2021	4	2021
-- ARTS-V3 EMD contract	4	2021	4	2021
Legacy RTS CEAR Development	1	2016	4	2019
-- CEAR Mini-MUTES Development and Integration	3	2018	4	2020
Legacy RTS Digital Threat Relevance	2	2017	2	2020

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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 0604735F / Combat Training Ranges		Project (Number/Name) 652286 / Combat Training Range Equipment	
	Start		End	
Events	Quarter	Year	Quarter	Year
-- Pre-Development Analysis	1	2016	3	2018
-- Control System Development	2	2017	4	2018
-- Emitter System Development	2	2019	2	2021
Advanced Radar Threat System Variant 4 (ARTS-V4) Pre-milestone B	1	2018	3	2020
ARTS-V4 Milestone B	3	2020	3	2020
ARTS-V4 Development	2	2021	4	2022