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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Air Force **Date:** March 2014

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>					R-1 Program Element (Number/Name) PE 0604256F / <i>Threat Simulator Development</i>							
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	22.348	14.841	24.418	-	24.418	24.003	22.020	22.436	22.833	Continuing	Continuing
662907: <i>Electronic Combat Intel Support</i>	-	1.840	1.558	2.631	-	2.631	3.218	2.526	2.586	2.621	Continuing	Continuing
663321: <i>Electronic Warfare Ground Test Resources</i>	-	13.243	9.506	13.188	-	13.188	12.759	12.352	12.578	12.787	Continuing	Continuing
667500: <i>Foreign Materiel Acquisition/Analysis</i>	-	7.265	3.777	8.599	-	8.599	8.026	7.142	7.272	7.425	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This PE provides funding for the elements necessary to support the Air Force Electronic Warfare (EW) Test Process, including Directed Energy (DE). This test process provides a scientific methodology to ensure the effective disciplined and efficient testing of EW and avionics systems. Each capability or facility improvement is pursued in concert with the others to avoid duplicate capabilities while at the same time producing the proper mix of test resources needed to support the AF EW Test Process and testing of EW systems which can be used in any action involving the use of electromagnetic and DE to control the electromagnetic spectrum or to attack the enemy. This PE provides funding for the management and technical oversight of implementation activities, development and improvement of digital EW models, measurement facilities improvements, hardware-in-the-loop test facilities improvements, and installed system test facility improvements. Support includes requirements definition and analysis, project planning, programming and budgeting, technical oversight, and application of T&E facility Improvement & Modernization (I&M). Products include studies, analyses, improved Modeling & Simulation (M&S) of threat sources, improved or new T&E capabilities to support EW testing and related documentation. Additionally, this PE provides funding to support the acquisition and analysis efforts of the Foreign Materiel Program and EW intelligence efforts.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 0604256F I Threat Simulator Development			
B. Program Change Summary (\$ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	22.812	17.690	22.213	-	22.213
Current President's Budget	22.348	14.841	24.418	-	24.418
Total Adjustments	-0.464	-2.849	2.205	-	2.205
• Congressional General Reductions	-0.030	-			
• Congressional Directed Reductions	-	-2.849			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.434	-			
• Other Adjustments	-	-	2.205	-	2.205
Change Summary Explanation					
FY14: \$2.849M Congressional Directed Reduction: Program decrease.					
FY15: \$2.205M Other Adjustment increase: Restoral of AF T&E infrastructure.					

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force										Date: March 2014		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0604256F / Threat Simulator Development				Project (Number/Name) 662907 / Electronic Combat Intel Support			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
662907: Electronic Combat Intel Support	-	1.840	1.558	2.631	-	2.631	3.218	2.526	2.586	2.621	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
# The FY 2015 OCO Request will be submitted at a later date.												
A. Mission Description and Budget Item Justification												
This project provides funding to support Foreign Materiel Operational Test and Evaluation (FMOT&E), which ensures the ability of operational commands to test and develop effective Electronic Attack/Electronic Protection (EA/EP) techniques and tactics. Funds are required for: deployment of systems to test facilities; travel of personnel to the test sites to evaluate and validate test results; range and laboratory costs; test consumables; costs for instrumentation of systems; and contracted engineering support for the conduct of tests and subsequent reporting. Funding for this program is required to prevent future aircraft losses due to improper and inaccurate aircrew tactics (e.g., lack of evasive action or proper tactics training to avoid missile attack).												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2013	FY 2014	FY 2015	
Title: FMOT&E									1.840	1.558	2.631	
Description: Supports Foreign Materiel Operational Test and Evaluation (FMOT&E)												
FY 2013 Accomplishments: Continued to conduct foreign materiel operational analysis (FMOA) for fighter and bomber testing; mobility/special operations transport/helicopter testing; classified operational assessments; and extensive evaluations and reporting of system effectiveness.												
FY 2014 Plans: Continue to conduct foreign materiel operational analysis (FMOA) for fighter and bomber testing; mobility/special operations transport/helicopter testing; classified operational assessments; and extensive evaluations and reporting of system effectiveness.												
FY 2015 Plans: Continue to conduct foreign material operational analysis (FMOA) for figher and bomber testing; mobility/special operations transport/helicopter testing; classified operational assessments; and extensive evaluations and reporting of system effectiveness.												
Accomplishments/Planned Programs Subtotals									1.840	1.558	2.631	

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Appropriation/Budget Activity 3600 / 6				R-1 Program Element (Number/Name) PE 0604256F / <i>Threat Simulator Development</i>				Project (Number/Name) 662907 / <i>Electronic Combat Intel Support</i>			
C. Other Program Funding Summary (\$ in Millions)											
			<u>FY 2015</u>	<u>FY 2015</u>	<u>FY 2015</u>					<u>Cost To</u>	
Line Item	FY 2013	FY 2014	Base	OCO	Total	FY 2016	FY 2017	FY 2018	FY 2019	Complete	Total Cost
• RDTE: BA 06: PE 0605807F: <i>Test and Evaluation Support</i>	670.586	722.658	689.509	-	689.509	672.427	680.719	688.020	700.796	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
Not applicable.											
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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Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force										Date: March 2014		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0604256F / Threat Simulator Development				Project (Number/Name) 663321 / Electronic Warfare Ground Test Resources			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
663321: Electronic Warfare Ground Test Resources	-	13.243	9.506	13.188	-	13.188	12.759	12.352	12.578	12.787	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
# The FY 2015 OCO Request will be submitted at a later date.												
A. Mission Description and Budget Item Justification												
The AF requires a comprehensive set of test facilities to implement the Air Force Electronic Warfare (EW) Test Process in order to test EW systems, including Directed Energy (DE). To manage program risk effectively throughout the weapons system acquisition process, and conduct T&E effectively and efficiently, a broad multi-spectrum, integrated set of T&E capabilities for modeling and simulation through open-air ranges (OAR) are required. The EW Test Process Support task provides for investment management, coordinated technical oversight, and application of EW T&E facilities, including studies, analyses, and related documentation. The National Radar Cross Section (RCS) Test Facility (NRTF) at Holloman AFB, NM, provides timely, accurate, and secure RCS and antenna measurements for tri-service and joint program offices, DoD laboratories, Defense Advanced Research Projects Agency (DARPA) and industry. The NRTF tests fielded and developmental systems and technology to meet Low Observable (a.k.a. stealth) and EW customer requirements. The Guided Weapons Evaluation Facility (GWEF), 412 EWG/OL-HN and the Digital Integrated Air Defense System (DIADS) provide the ability to realistically evaluate hardware components and simulated weapon systems against manned hardware threat representations throughout the acquisition process. GWEF provides simulations of advanced Infrared (IR) & Radio Frequency (RF) semi-active Surface-to-Air Missiles (SAMs), Air-to-Air Missiles (AAMs), RF missile warning, IR and Laser countermeasure functions; integration of actual threat hardware and ground clutter into advanced threat RF and IR missile simulations. DIADS provides algorithm based enemy command and control (C2) capabilities plus early warning radar detection, limited ground control intercept features and also allows man-in-the-loop interaction for the enemy C2 positions. The Advanced Warfare Test and Evaluation Capability (AWTEC) will replace 90's technology with state-of-the-art stimulators to upgrade the Benefield Anechoic Facility (BAF) at Edwards AFB, CA and provides Electromagnetic Interference/Electromagnetic Compatibility (EMI/EMC) capabilities at the BAF. Improvement and modernization efforts within this PE are identified for the EW mission area. EW provides planning, improvements, and modernization needed for test capabilities to conduct and support the AF EW test process, including DE. This test process provides a scientific methodology to ensure the effective disciplined and efficient testing of EW and avionics systems.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2013	FY 2014	FY 2015	
Title: I&M									11.537	8.749	11.606	
Description: Provides for planning and improvement & modernization (I&M) of test capabilities to conduct and support the AF EW test process, including DE.												
FY 2013 Accomplishments:												
The 96 TW at Eglin AFB (IR) and the 412 EWG/OL-HN (RF) at Wright-Patterson AFB completed backup of all software received from the Air Force Electronic Warfare Evaluation Simulator (AFEWES) lab. The 96 TW initiated system integration, development and calibration plans for a new 9-axis flight motion simulator (FMS) capability. The 412 EWG/OL-HN began facility renovations												

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Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0604256F / <i>Threat Simulator Development</i>	Project (Number/Name) 663321 / <i>Electronic Warfare Ground Test Resources</i>	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2013	FY 2014
<p>and conducted initial operator training and functional checkouts of 33% of RF equipment transferred from Ft Worth in 2012. The Digital Integrated Air Defense System (DIADS) upgrade project fielded software version 7.2 containing Remote Interface Control updates to support multiple interfaces; continued development of advanced jamming capabilities, control and display system upgrades, and improved sensor and multi-mode capabilities; and initiated efforts to improve weapon command and control algorithms to simulate evolving air defense threats in support of acquisition programs such as F-22, F-35, B-2 and MALD-J. The Advanced Warfare Test & Evaluation Capability (AWTEC) project completed regression and acceptance testing of Electromagnetic Interference/Electromagnetic Compatibility (EMI/EMC) upgrades at the Benefield Anechoic Facility (BAF) and continued integrating an advanced radar environment simulation (ARES) upgrade, new real-time displays and controls, new Identify Friend or Foe (IFF) software, and advanced Global Positioning System (GPS) and navigation system upgrades in the BAF. The National Radar Cross Section (RCS) Test Facility (NRTF) upgrade project began site preparation for the new operations center; completed the design of the RCS Advanced Measurement Site (RAMS) utility improvements design; and initiated development of consolidated machine/supply shops and a new specialized paint booth fire suppression system to enhance efficiency of operations and accuracy for measuring RCS of Low Observable platforms and antennas. NRTF also completed design of a new Radar VHF/UHF Measurement System (RVUMS) Antenna Feed to enhance broadband signal performance and completed several studies addressing improvements in signal processing and system accuracy.</p> <p>FY 2014 Plans: The 412 EWG/OL-HN will continue RF threat simulator reconstitution and complete end-to-end checkout for approximately 50% of the delivered RF threat simulator systems. The 96 TW will continue system integration, development and calibration efforts on the IR 9-axis FMS, and will begin IR simulator software improvements and upgrade system hardware and interfaces. DIADS will field a new software release which improves tracker capability and improves scenario preparation, continue development of advanced jamming capabilities, continue development of improved weapon command and control algorithms, and validate architecture and simulation upgrades to advance new capabilities to simulate evolving threats. AWTEC will continue BAF upgrades to provide new state-of-the-art stimulators and EMI/EMC test capabilities in high and low frequency bands, and will complete integration of new real-time displays and controls, new Identify Friend or Foe (IFF) software, and advanced GPS and navigation system upgrades in the BAF. AWTEC will also develop and procure upgrades to LINK-16 and satellite communication systems, including antenna mounting and pointing systems, and will also begin development and integration of a follow-on ARES build. NRTF will continue upgrades of the machine/supply shops facilities; initiate development and procurement of the RVUMS Antenna Feed; implement a high-power transmitter system; and initiate a study of next generation RCS metrology requirements.</p> <p>FY 2015 Plans: The 96 TW will continue development of IR threat simulator capabilities to include the 9-axis FMS and upgrade of additional system hardware and interfaces. DIADS will field a new software release and continue to develop and validate architecture and simulation upgrades to advance new capabilities to simulate evolving threats, including improvements to command and control models and design and development of advanced threat tracking capabilities. AWTEC will continue BAF upgrades to provide</p>			

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B. Accomplishments/Planned Programs (\$ in Millions)										FY 2013	FY 2014	FY 2015
better test chamber control, integration and monitoring; will complete development, integration and checkout of the LINK-16 and satellite communication systems; and will continue development and integration of a follow-on ARES build. NRTF will continue facility upgrades to consolidate and enhance efficiency of operations and accuracy for measuring RCS of Low Observable platforms and antennas, including design studies of next generation radar and RCS metrology requirements.												
Title: EC Test Process Support										1.706	0.757	1.582
Description: Electronic Combat (EC) Test Process Support. Conduct requirements analyses and other studies in support of Air Force T&E investments in test infrastructure and capabilities.												
FY 2013 Accomplishments: Provided Systems Engineering/Technical Assistance (SETA) support needed to implement planned Air Force test processes and infrastructure I&M capabilities. Team members supported tri-service studies and analysis identifying joint investment needs and developing requirements recommendations.												
FY 2014 Plans: Continue to provide SETA support needed to implement planned Air Force test processes and infrastructure I&M capabilities. Team members will continue support to tri-service monitoring and analysis teams established to identify emerging joint investment needs and requirements development. Team members will help manage and monitor I&M program elements and activities.												
FY 2015 Plans: Continue to provide SETA support needed to implement planned Air Force test processes and infrastructure I&M capabilities. Team members will continue support to tri-service monitoring and analysis teams established to identify emerging joint investment needs and requirements development. Team members will help manage and monitor I&M program elements and activities.												
Accomplishments/Planned Programs Subtotals										13.243	9.506	13.188
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost	
• RDTE: BA 06: PE 0604759F: Major T&E Investment	33.968	32.341	47.232	-	47.232	68.755	67.374	68.690	69.998	Continuing	Continuing	
• RDTE: BA 06: PE 0605807F: Test and Evaluation Support	670.586	722.658	689.509	-	689.509	672.427	680.719	688.020	700.796	Continuing	Continuing	
• RDTE: BA 06: PE 0605976: Facility Restoration & Modernization - T&E	38.854	44.160	46.955	-	46.955	40.787	43.319	44.157	44.723	Continuing	Continuing	

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C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u> <u>Base</u>	<u>FY 2015</u> <u>OCO</u>	<u>FY 2015</u> <u>Total</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE: BA 06: PE 0605978F: Facilities Sustainment - T&E Support	24.986	27.643	32.965	-	32.965	28.080	28.598	29.154	29.623	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
NA											
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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Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0604256F / Threat Simulator Development				Project (Number/Name) 667500 / Foreign Materiel Acquisition/ Analysis			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
667500: Foreign Materiel Acquisition/Analysis	-	7.265	3.777	8.599	-	8.599	8.026	7.142	7.272	7.425	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
# The FY 2015 OCO Request will be submitted at a later date.												
A. Mission Description and Budget Item Justification												
This project's specific purpose is to support USAF Foreign Materiel Program requirements through the acquisition and analysis of foreign materiel. Items considered for these Foreign Materiel Acquisition (FMA) funds are included in the prioritized Air Force FMA Top 20 list established each year. Each Major Command (MAJCOM) prepares and approves a Foreign Materiel - Mission Requirements Statement for each requirement. Annually, the MAJCOM commanders establish a list of their top 20 requirements. The MAJCOMs' requirements lists are integrated and prioritized into a classified Air Force requirement list. Each MAJCOM then approves the FMA Top 20 List and final validation comes from the Air Force Vice Chief of Staff. System analyses are based on and driven by acquisitions. The USAF provides assessments and data for threat systems to all DoD components.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2013	FY 2014	FY 2015	
Title: FMP									7.265	3.777	8.599	
Description: Supports USAF Foreign Materiel Program (FMP) Requirements through the acquisition and analysis of foreign materiel.												
FY 2013 Accomplishments: Continued to fund acquisition of available Foreign Materiel IAW the prioritized Air Force Foreign Materiel List; analysis of acquired Foreign Materiel; and operations and maintenance of the specialized Foreign Materiel assets.												
FY 2014 Plans: Continue to fund acquisition of available Foreign Materiel IAW the prioritized Air Force Foreign Materiel List; analysis of acquired Foreign Materiel; and operations and maintenance of the specialized Foreign Materiel assets.												
FY 2015 Plans: Continue to fund acquisition of available Foreign Materiel IAW the prioritized Air Force Foreign Materiel List; analysis of acquired Foreign Materiel; and operations and maintenance of the specialized Foreign Materiel assets.												
Accomplishments/Planned Programs Subtotals									7.265	3.777	8.599	

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C. Other Program Funding Summary (\$ in Millions)											
			<u>FY 2015</u>	<u>FY 2015</u>	<u>FY 2015</u>					<u>Cost To</u>	
Line Item	FY 2013	FY 2014	Base	OCO	Total	FY 2016	FY 2017	FY 2018	FY 2019	Complete	Total Cost
• RDTE: BA 06: PE 0605807F: <i>Test and Evaluation Support</i>	670.586	722.658	689.509	-	689.509	672.427	680.719	688.020	700.796	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
Not applicable.											
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.											