

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force										Date: February 2018		
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							
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	-	21.377	35.405	34.256	0.000	34.256	46.393	42.925	29.444	29.977	Continuing	Continuing
662907: Electronic Combat Intel Support	-	2.681	2.547	2.556	0.000	2.556	2.603	2.648	2.704	2.753	Continuing	Continuing
663321: Electronic Warfare Ground Test Resources	-	12.280	25.695	24.459	0.000	24.459	36.414	32.774	19.081	19.427	Continuing	Continuing
667500: Foreign Materiel Acquisition/Analysis	-	6.416	7.163	7.241	0.000	7.241	7.376	7.503	7.659	7.797	Continuing	Continuing

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 (M&S) through open-air ranges (OAR) is 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 technologies 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 and 412 EWG/OL-HN provide simulations of advanced Infrared (IR) semi-active Surface-to-Air Missiles (SAMs), Air-to-Air Missiles (AAMs), IR and Laser countermeasure functions; integration of actual threat hardware and ground clutter into advanced threat 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.

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 installation or operations required for general research, development, test and evaluation.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force				Date: February 2018	
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	21.630	35.405	28.513	0.000	28.513
Current President's Budget	21.377	35.405	34.256	0.000	34.256
Total Adjustments	-0.253	0.000	5.743	0.000	5.743
• 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	-0.253	0.000	5.743	0.000	5.743
Change Summary Explanation					
FY17 \$0.253 million decrease for Small Business Innovation Research (SBIR) tax.					
FY19 \$5.743 million increase due to \$6.000 million increase for 5th Generation Target Emulation Initiative (5GATE) and \$0.257 million decrease due to inflation adjustment.					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force										Date: February 2018		
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 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
662907: Electronic Combat Intel Support	-	2.681	2.547	2.556	0.000	2.556	2.603	2.648	2.704	2.753	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
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 2017	FY 2018	FY 2019	
Title: FMOT&E									2.681	2.547	2.556	
Description: Supports Foreign Materiel Operational Test and Evaluation (FMOT&E)												
FY 2018 Plans: Continue to conduct foreign material 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 2019 Plans: Continued operations of electronic combat intelligence support for fighter and bomber testing, mobility special operations transport and helicopter testing, classified operational assessments and extensive evaluations and reporting of system effectiveness.												
FY 2018 to FY 2019 Increase/Decrease Statement: \$0.009 million increase from FY 2018 to FY 2019 due to inflation adjustment.												
Accomplishments/Planned Programs Subtotals									2.681	2.547	2.556	
C. 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 06 PE 0604759F: Major T&E Investment	64.538	82.874	91.844	-	91.844	181.663	164.005	142.090	82.003	Continuing	Continuing	

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force										Date: February 2018	
Appropriation/Budget Activity 3600 / 6				R-1 Program Element (Number/Name) PE 0604256F / Threat Simulator Development				Project (Number/Name) 662907 / Electronic Combat Intel Support			
C. 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 06 PE 0605807F: Test and Evaluation Support	676.417	678.289	692.784	-	692.784	719.900	726.015	760.319	737.765	Continuing	Continuing
• RDTE 06 PE 0605976F: Facility Restoration and Modernization - T&E	134.111	135.507	162.216	-	162.216	88.445	69.293	70.730	72.019	Continuing	Continuing
• RDTE 06 PE 0605978F: Facility Sustainment - T&E Support	28.091	28.720	28.888	-	28.888	29.424	29.935	30.555	31.112	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.											

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force										Date: February 2018		
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 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
663321: Electronic Warfare Ground Test Resources	-	12.280	25.695	24.459	0.000	24.459	36.414	32.774	19.081	19.427	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 (M&S) through open-air ranges (OAR) is 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 technologies 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 and 412 EWG/OL-HN provide simulations of advanced Infrared (IR) semi-active Surface-to-Air Missiles (SAMs), Air-to-Air Missiles (AAMs), IR and Laser countermeasure functions; integration of actual threat hardware and ground clutter into advanced threat 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 Benfield 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 2017	FY 2018	FY 2019
Title: I&M	10.650	16.322	22.842
Description: Provides for planning and improvement & modernization (I&M) of test capabilities to conduct and support the AF EW test process, including DE.			
FY 2018 Plans: The 96 TW will continue development of hardware and software upgrades to 5-axis IR threat simulator capabilities. DIADS will complete development and validation of needed architecture and simulation upgrades, including improvements to command and control, sensor reactivity, and jamming models. AWTEC will complete the development, procurement and integration of new state-of-the-art stimulators and threat signal generation capabilities for the BAF. NRTF will continue facility upgrades to			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018	
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 2017	FY 2018
consolidate and enhance operations efficiency and improve RCS measurement accuracy of Low Observable platforms and antennas, including design studies of next generation radar and RCS metrology requirements.			
FY 2019 Plans: Red Integrated Air Defense System (Red-IADS), Electronics Warfare Test Capability Improvement Program (EWTCIP), Jammer Electronic Counter Measures Enhancement and Integration, National RCS Test Facility (NRTF) Modernization and Measurement programs begin in FY19. IR EW Simulator Support (IREWTS), NEWEG for J-PRIMES (NEWEG-J) and CIGTF GPS NAVWAR Upgrade (CGNU) programs continue executing development, procurement and integration as appropriate.			
FY 2018 to FY 2019 Increase/Decrease Statement: \$6.520 million increase from FY 2018 to FY 2019 due to new programs Red-IADS, EWTCIP, Jammer ECM Enhancement and Integration program, funding of 5GATE, continued funding of NEWEG-J and inflation rate, offset by decrease of funding for DIADS and AWTEC due to program completion.			
Title: EC Test Process Support 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.		1.630	9.373
FY 2018 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. Support directed threat simulator acquisition effort.			1.617
FY 2019 Plans: Continued to provide SETA support needed to implement planned Air Force test processes and infrastructure I&M capabilities. Team members will continue to support 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 2018 to FY 2019 Increase/Decrease Statement: \$7.756 million decrease from FY 2018 to FY 2019 due to completion of support for directed threat simulator acquisition effort.			
Accomplishments/Planned Programs Subtotals		12.280	25.695
			24.459

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force									Date: February 2018			
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				
C. 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 06 PE 0604759F: Major T&E Investment	64.538	82.874	91.844	-	91.844	181.663	164.005	142.090	82.003	Continuing	Continuing	
• RDTE 06 PE 0605807F: Test and Evaluation Support	676.417	678.289	692.784	-	692.784	719.900	726.015	760.319	737.765	Continuing	Continuing	
• RDTE 06 PE 0605976: Facility Restoration & Modernization - T&E	134.111	135.507	162.216	-	162.216	88.445	69.293	70.730	72.019	Continuing	Continuing	
• RDTE 06 PE 0605978F: Facilities Sustainment - T&E Support	28.091	28.720	28.888	-	28.888	29.424	29.935	30.555	31.112	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.												

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force										Date: February 2018		
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 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
667500: Foreign Materiel Acquisition/Analysis	-	6.416	7.163	7.241	0.000	7.241	7.376	7.503	7.659	7.797	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
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 2017	FY 2018	FY 2019	
Title: FMP									6.416	7.163	7.241	
Description: Supports USAF Foreign Materiel Program (FMP) Requirements through the acquisition and analysis of foreign materiel.												
FY 2018 Plans: Continue to fund acquisition of available Foreign Materiel in accordance with the prioritized Air Force Foreign Materiel List; analysis of acquired Foreign Materiel; and operations and maintenance of the specialized Foreign Materiel assets.												
FY 2019 Plans: Continue to fund acquisition of available Foreign Materiel in accordance with the prioritized Air Force Foreign Materiel List; analysis of acquired Foreign Materiel; and operations and maintenance of the specialized Foreign Materiel assets.												
FY 2018 to FY 2019 Increase/Decrease Statement: \$0.078M million increase from FY 2018 to FY 2019 due to inflation.												
Accomplishments/Planned Programs Subtotals									6.416	7.163	7.241	

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force										Date: February 2018	
Appropriation/Budget Activity 3600 / 6				R-1 Program Element (Number/Name) PE 0604256F / Threat Simulator Development				Project (Number/Name) 667500 / Foreign Materiel Acquisition/ Analysis			
C. Other Program Funding Summary (\$ in Millions)											
			<u>FY 2019</u>	<u>FY 2019</u>	<u>FY 2019</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>Complete</u>	<u>Total Cost</u>
• RDTE 06 PE 0604759F: Major T&E Investment	64.538	82.874	91.844	-	91.844	181.663	164.005	142.090	82.003	Continuing	Continuing
• RDTE 06 PE 0605807F: Test and Evaluation Support	676.417	678.289	692.784	-	692.784	719.900	726.015	760.319	737.765	Continuing	Continuing
• RDTE 06 PE 0605976F: Facility Restoration & Modernization - T&E	134.111	135.507	162.216	-	162.216	88.445	69.293	70.730	72.019	Continuing	Continuing
• RDTE 06 PE 0605978F: Facilities Sustainment -T&E Support	28.091	28.720	28.888	-	28.888	29.424	29.935	30.555	31.112	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.											