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<b>Exhibit R-2, RDT&amp;E Budget Item Justification: FY 2018 Air Force</b>	<b>Date: May 2017</b>
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<b>Appropriation/Budget Activity</b> 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					<b>R-1 Program Element (Number/Name)</b> PE 0605807F I Test and Evaluation Support							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	683.307	680.217	678.289	0.000	678.289	686.379	700.630	713.790	729.060	Continuing	Continuing
6606TG: 704th Test Group	-	35.797	36.680	37.485	0.000	37.485	38.041	38.712	39.436	40.259	Continuing	Continuing
6606TS: Test and Evaluation Support	-	647.510	643.537	640.804	0.000	640.804	648.338	661.918	674.354	688.801	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Test facilities, capabilities and resources operated through this program include wind tunnels, rocket and jet engine test cells, armament test ranges, hardware-in-the-loop test facilities, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, civilian payroll, and contractor services. It also provides resources for maintaining and modifying as required Air Force Materiel Command (AFMC) assigned test and test support coded aircraft. No acquisition contracts are funded from this program; test support contracts for services and supplies and equipment are predominantly awarded on the basis of full and open competition.

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.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
Previous President's Budget	683.308	661.417	672.180	0.000	672.180
Current President's Budget	683.307	680.217	678.289	0.000	678.289
Total Adjustments	-0.001	18.800	6.109	0.000	6.109
• 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	-0.001	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	18.800	6.109	0.000	6.109

**Change Summary Explanation**

FY17: \$18.8 million is required to address emergency war fighting requirements as part of the Fiscal Year(FY) 2017 Request for Additional Appropriations. The funding will provide \$14.4 million of additional F-15 flying hours and contract maintenance labor to support on-going developmental test efforts avoiding critical delays and \$4.4 million for cyber test infrastructure to support early detection of cyber vulnerabilities.

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FY18: \$6.109 million increase related to additional funding for weapon system cyber resiliency testing, manpower/civilian pay moves in and out of the PE associated with the 5 Center Reorganization and reporting of management headquarters personnel, and adjustments for economic assumptions associated with nonpay/nonfuel inflation and fuel pricing. Also, included in the total is an increase of \$1.827 million for a civilian pay raise.		

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605807F / Test and Evaluation Support				Project (Number/Name) 6606TG / 704th Test Group			
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
6606TG: 704th Test Group	-	35.797	36.680	37.485	0.000	37.485	38.041	38.712	39.436	40.259	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

Project infrastructure support is provided for the unique capabilities of the 704th Test Group (TG) facilities: Central Inertial and Global Positioning System (GPS) Test Facility (CIGTF/746th Test Squadron), the Holloman High Speed Test Track (HHSTT/846th Test Squadron) and the National Radar Cross Section (RCS) Test Facility (NRTF/704 TG Det 2), the 586th Flight Test Squadron including Detachment 1 (Det 1), 704 TG Operating Location (704 TG OL-AA) at Kirtland AFB, and 704 TG Operation Location (704 TG OL-AC) at Wright-Patterson AFB.

CIGTF provides independent test and evaluation of inertial, Global Positioning System, and integrated systems used for aircraft navigation and missile guidance systems, including vulnerability to electronic interference.

HHSTT capabilities include full-scale testing in flight representative environments, realistic live-fire simulations, test item and target fragment recovery, precision trajectory analysis and high speed photography.

NRTF provides radar cross section (RCS) monostatic and bistatic amplitude and phase measurements, antenna pattern measurements, glint and near field measurements for low observable targets.

The 586th Flight Test Squadron executes flight test and test support for advanced avionics and weapons development of joint, international and commercial test programs. Det 1 provides the liaison function for coordinating and scheduling all US Air Force test and training operations at White Sands Missile Range (WSMR). OL-AA provides test support for the Air Force Research Lab (AFRL) Directed Energy Division.

The 704 TG OL-AC includes the Landing Gear Test Facility (LGTF) with capabilities such as variable and fixed inertia dynamometers, compression/tension load applicators, 4 drop towers, a burst pit and a dynamic load simulator. The 704 TG OL-AC also includes the Air Vehicle Survivability Office that provides support for Air Force aircraft acquisition programs. The 704th TG support services contracts are awarded on the basis of full and open competition.

## **B. Accomplishments/Planned Programs (\$ in Millions)**

	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<b>Title:</b> 704th Test Group	35.797	36.680	37.485
<b>Description:</b> Provide infrastructure at the 704th Test Group (TG) to support testing of DoD, other Government Agencies, foreign military sales, and commercial weapon systems.			
<b>FY 2016 Accomplishments:</b>			

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b> Total consisted of utilities, contractor services, and civilian pay. <b>FY 2017 Plans:</b> Total consists of utilities, contractor services, and civilian pay. <b>FY 2018 Plans:</b> Total consists of utilities, contractor services, and civilian pay.							FY 2016	FY 2017	FY 2018		
<b>Accomplishments/Planned Programs Subtotals</b>							35.797	36.680	37.485		
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u> <u>Base</u>	<u>FY 2018</u> <u>OCO</u>	<u>FY 2018</u> <u>Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• NA: NA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000
<b>Remarks</b>  <b>D. Acquisition Strategy</b> Not applicable  <b>E. Performance Metrics</b> 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 0605807F / Test and Evaluation Support				Project (Number/Name) 6606TS / Test and Evaluation Support			
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
6606TS: Test and Evaluation Support	-	647.510	643.537	640.804	0.000	640.804	648.338	661.918	674.354	688.801	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
<p>This project provides resources to operate the Air Force Test Center (AFTC) test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB). Test facilities/capabilities operated through this program include wind tunnels, rocket and jet engine test cells, hypersonic and subsonic testing, modeling and simulation, technology, limited space environmental simulation chambers, armament test ranges, hardware-in-the-loop test facilities, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, and test aircraft maintenance, as well as USAF Test Pilot School.</p> <p>Test and Evaluation (T&amp;E) Support funds institutional test infrastructure activities including: Command and supervisory staffs; supply stocks; maintenance, repair, and replacement of worn or obsolete test equipment and facilities; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries; temporary duty travel; range operations and material support contract costs for hardware and software engineering and maintenance; and minor improvement and modernization projects. It also funds institutional test aircraft depot level maintenance such as: Programmed Depot Maintenance (PDM), the calendar-based cyclic scheduling of aircraft into depots for update/inspection; modifications and any other depot level repairs required by the aircraft System Program Directors (SPD); engine overhauls; depot-provided area assistance; and assorted ground support equipment overhauls.</p> <p>The AFTCs three test wings are supported by this project: (1) Arnold Engineering and Development Complex (AEDC), located at Arnold Air Force Base (AFB), TN, whose institutional test infrastructure supports operations of the largest complex of ground test facilities in the world (includes transonic, supersonic, and hypersonic wind tunnels;rocket motor and turbine engine test cells; space environmental test chambers, hyperballistic ranges; and other specialized facilities). Included are operations at the National Full-Scale Aerodynamic Complex (NFAC) located at NASA's AMES Research Center, California as well as operations at Tunnel 9 located at White Oak, Maryland.(2) 412 Test Wing (TW), located at Edwards AFB, CA, whose institutional test infrastructure supports weapons system development and operational test and evaluation for aircraft, aircraft subsystems and aircraft weapon systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachute delivery/recovery systems, cargo handling systems, communications, information operations, and Electronic Warfare (EW) systems for DoD and allied forces. The 412TW mission includes the USAF Test Pilot School. (3) 96 TW, located at Eglin AFB, FL, is a joint test and training complex of 724 square miles of land area, and approximately 123,000 square miles of water area. 96TW provides the institutional test infrastructure required to conduct developmental and operational test and evaluation of non-nuclear air armaments (including aircraft guns, ammunition, and air-to-surface and air-to-air guided munitions); Command, Control, Communications, Computers and Intelligence/Surveillance/Reconnaissance (C4ISR) systems; target acquisition and weapon delivery systems; the McKinley Climatic Lab, multi-service climatic simulation capability, located at Eglin AFB, FL; and special operations aircraft systems. 96TW provides a scientific test process that supports the development, production, sustainment, and enhancement of munitions systems that support tri-service digital weapons development. T&amp;E support services contracts are awarded on the basis of full and open competition.</p>												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2016	FY 2017	FY 2018	
Title: AEDC, 412TW, 96TW									647.510	643.537	640.804	

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>										<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<b>Description:</b> Provide infrastructure to support testing at Arnold Engineering and Development Complex (AEDC), the 412TW and USAF Test Pilot School at Edwards AFB, and the 96TW at Eglin AFB.  <b>FY 2016 Accomplishments:</b> Total consisted of utilities, contractor services, civilian pay, and the test and evaluation flying hour program.  <b>FY 2017 Plans:</b> Total consists of utilities, contractor services, civilian pay, and the test and evaluation flying hour program.  <b>FY 2018 Plans:</b> Total consists of utilities, contractor services, civilian pay, and the test and evaluation flying hour program.												
<b>Accomplishments/Planned Programs Subtotals</b>										647.510	643.537	640.804
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u> <u>Base</u>	<u>FY 2018</u> <u>OCO</u>	<u>FY 2018</u> <u>Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>	
• NA: NA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	
<b>Remarks</b>												
<b>D. Acquisition Strategy</b>												
Not applicable.												
<b>E. Performance Metrics</b>												
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.												