Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Air Force											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 3: *Advanced Technology Development (ATD)*					R-1 ITEM NOMENCLATURE PE 0603211F: *Aerospace Technology Dev/Demo*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	-	64.544	81.376	77.347	-	77.347	82.305	96.821	79.402	84.903	Continuing	Continuing
634920: *Flight Vehicle Tech Integration*	-	64.544	81.376	77.347	-	77.347	82.305	96.821	79.402	84.903	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program integrates and demonstrates advanced flight vehicle technologies that improve the performance and supportability of existing and future aerospace vehicles. System level integration brings together aerospace vehicle technologies along with avionics, propulsion, and weapon systems for demonstration in a near-realistic operational environment. Integration and technology demonstrations reduce the risk and time required to transition technologies into operational aircraft. Efforts in this program have been coordinated through the Department of Defese (DoD) science and Technology (S&T) Executive Committe process to harmonize efforts and eliminate duplication. This program is in Budget activity 3, Advanced Technology Development, since it enables and demonstrates technologies for existing system upgrades and/or new system developments that have military utility and address warfighter needs.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	67.474	81.376	80.347	-	80.347
Current President's Budget	64.544	81.376	77.347	-	77.347
Total Adjustments	-2.930	0.000	-3.000	-	-3.000
• Congressional General Reductions	-	0.000			
• Congressional Directed Reductions	-	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	-	0.000			
• Congressional Directed Transfers	-	0.000			
• Reprogrammings	-1.000	0.000			
• SBIR/STTR Transfer	-1.930	0.000			
• Other Adjustments	0.000	0.000	-3.000	-	-3.000

Change Summary Explanation

Decrease in FY 14 is due to higher DoD priorities.

Reprogrammed for specific projects in accordance with Section 219 of the Duncan Hunter National Defense Authorization Act for Fiscal Year (FY) 2009, as amended by Section 2801 of the National Defense Authorization Act for FY 2010.

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: Autonomous Flight Controls	13.006	5.416	3.556
Description: Develop autonomous flight controls for safe flight and cooperative operations between manned and remotely piloted air (RPA) platforms. ***FY 2012 Accomplishments:*** Developed and demonstrated technologies that provide situational awareness, autonomous control and survivability for remotely piloted systems and manned platforms. Continued efforts for cooperative teaming of small remotely piloted platforms in complex, low altitude environments. Initated testing of advanced control systems. Continued development of autonomous launch and safe airspace interoperability technologies for multiple remotely piloted systems. ***FY 2013 Plans:*** Continue development and demonstration of technologies for situational awareness, autonomous control, and survivability for unmanned systems and manned platforms. Demonstrate cooperative teaming of small unmanned platforms in complex, low altitude environments. Demonstrate autonomous launch and safe airspace interoperability for multiple remotely piloted systems. ***FY 2014 Plans:*** Further development and demonstration of technologies for situational awareness, autonomous control, and survivability for unmanned systems and manned platforms. Conclude demonstration of cooperative teaming of small unmanned platforms in complex, low altitude environments. Continue demonstration of autonomous and safe airspace interoperability for manned and RPA systems.			
Title: Enhanced Platform Capabilities	11.180	59.004	20.970
Description: Develop, simulate, and demonstrate integrated technologies to improve the performance of aerospace platform capabilities. ***FY 2012 Accomplishments:*** Continued work to develop and demonstrate flow control technologies for reducing acoustic loading and enhancing weapon separation from future strike platforms. Continued technology development efforts for cargo type platforms. Initiated combined high bypass ratio inlet and large fan technology demonstration. ***FY 2013 Plans:*** Complete lightweight composite structures ground experiment demonstration. Initiate technology efforts for precision air delivery capability for legacy mobility aircraft by reducing tracking errors and better integration of airdrop technologies. Mature adaptive turbine engine technologies for advanced air vehicles. Continue combined inlet and large bypass ratio fan demonstration. Begin			

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
demonstration of large cargo aircraft in formation flight for fuel burn reduction to support transition decision. Begin flight validation safety and operational compatibility of C-130 aircraft with aft body drag reduction devices. ***FY 2014 Plans:*** Further efforts for precision air delivery capability for legacy mobility aircraft by reducing tracking errors and better integration of airdrop technologies. Further development of advanced engine system design integration to mature adaptive turbine engine technologies for advanced air vehicles along with thrust augmentors and exhaust systems to provide technical options for highly fuel-efficient engines. Complete demonstration of large cargo aircraft in formation flight for fuel burn reduction to support transition decision. Complete flight safety validation and operational compatibility of C-130 aircraft with aft body drag reduction devices.			
Title: Multi-Role Structure Technologies ***Description:*** Develop aircraft structure technologies that have embedded components, which were previously separate components attached to the air platforms. ***FY 2012 Accomplishments:*** Continued flight test of antenna integration technology demonstration into load-bearing structures. Initiated demonstration efforts for reliability of unitized multi-role structure technologies. Demonstrated key high altitude persistent intelligence, surveillance, and reconnaissance (ISR) technologies. ***FY 2013 Plans:*** Continue flight test of antenna integration into load-bearing structures. Complete demonstrations of key high altitude persistent ISR technologies. Complete the demonstration of low band structurally integrated arrays and persistent multi-intelligence platforms. Develop passive flow control improvements for enhanced aero efficiency of legacy aircraft. ***FY 2014 Plans:*** Complete flight test of directional finding communication antenna integration technology demonstration into load-bearing structures for small RPA. Complete flight technology demonstrations of key high altitude persistent ISR for active flutter suppression, gust load alleviation, and adaptive, multi-purpose wing surfaces. Develop passive flow control technology improvements for enhanced aero efficiency of legacy aircraft. Initiate large scale conformal array technology demonstration into aircraft structure.	21.169	9.513	8.615
Title: Adaptive Structure Technologies ***Description:*** Develop technologies for adaptive structures to provide in-flight modifications offering improved performance. ***FY 2012 Accomplishments:***	11.127	1.139	0.000

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Furthered the demonstration of technologies necessary for reusable hypersonic vehicles. Assessed integrated structural health management technologies for lightweight remotely piloted air vehicles from subsonic to hypersonic speeds. Developed and assessed detailed integrated flight and ground systems concepts for operationally responsive space lift. ***FY 2013 Plans:*** Complete the development of integrated system health management and adaptive guidance and control technologies for aerospace vehicles. Complete structural health management ground technology demonstration for reusable space access vehicle. ***FY 2014 Plans:*** N/A.			
Title: High Speed/Hypersonic Vehicle Technologies ***Description:*** Develop, simulate and demonstrate integrated technologies to enable and improve the performance of high-speed and hypersonic air vehicles. ***FY 2012 Accomplishments:*** Continued efforts related to hypersonic ablation /shape-change measurement and prediction capabilities. Conducted hypersonic flight experiments. Continued efforts to study potential applications for utilizing high speed vehicles in ISR and strike missions. ***FY 2013 Plans:*** Complete demonstration of technologies necessary for reusable hypersonic vehicles and high-speed weapons and weapon systems. Continue to advance high temperature materials and structures for hypersonic vehicles. Continue small scale flight testing of high-speed flying experiments. ***FY 2014 Plans:*** Begin accelerated development and demonstration of tactically-relevant long range high speed strike technologies including ground and flight demonstrations needed for potential follow-on acquisition program. Effort builds upon successful scramjet engine demonstration under the X-51A program. Increase in FY14 also supports high speed/hypersonics testing support and continues to advance high temperature materials and structures for hypersonic vehicles.	8.062	6.304	44.206
Accomplishments/Planned Programs Subtotals	64.544	81.376	77.347

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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E. Acquisition Strategy

Not Applicable.

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.