

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Air Force	DATE: February 2012
--	----------------------------

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
3600: Research, Development, Test & Evaluation, Air Force BA 3: Advanced Technology Development (ATD)				PE 0603211F: Aerospace Technology Dev/Demo							
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	49.428	67.474	81.376	-	81.376	80.347	89.805	100.821	83.402	Continuing	Continuing
634920: Flight Vehicle Tech Integration	49.428	67.474	81.376	-	81.376	80.347	89.805	100.821	83.402	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project 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.

B. Program Change Summary (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	53.588	67.474	64.058	-	64.058
Current President's Budget	49.428	67.474	81.376	-	81.376
Total Adjustments	-4.160	-	17.318	-	17.318
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.423	-			
• SBIR/STTR Transfer	-1.446	-			
• Other Adjustments	-1.291	-	17.318	-	17.318

Change Summary Explanation

FY11: Other Adjustments include -0.291 Congressional General Reductions and -1.000 Congressional Directed Transfers

FY13: increase due to higher Air Force priorities in flight and ground concepts for operationally responsive space concepts and acceleration of turbine engine activities.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Title: Major Thrust 1.	12.197	13.906	5.416	-	5.416

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Air Force				DATE: February 2012		
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				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
<p>Description: Develop autonomous flight controls for safe flight and cooperative operations between manned and remotely piloted air platforms.</p> <p>FY 2011 Accomplishments: Furthered the development and demonstration process for situational awareness, autonomous control, and survivability technologies. Continued efforts for cooperative teaming of small remotely piloted aircraft in complex, low altitude environments. Continued development of autonomous launch and safe airspace interoperability technologies for multiple remotely piloted systems.</p> <p>FY 2012 Plans: Develop and demonstrate technologies that provide situational awareness, autonomous control, and survivability for remotely piloted systems and manned platforms. Continue efforts for cooperative teaming of small remotely piloted platforms in complex, low altitude environments. Initiate testing of advanced control systems. Continue development of autonomous launch and safe airspace interoperability technologies for multiple remotely piloted systems.</p> <p>FY 2013 Base 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. Decrease in FY 2013 due to higher Department of Defense priorities.</p> <p>FY 2013 OCO Plans: N/A</p>						
<p>Title: Major Thrust 2.</p> <p>Description: Develop, simulate, and demonstrate integrated technologies to improve the performance of aerospace platform capabilities.</p> <p>FY 2011 Accomplishments: Continued work to develop and demonstrate flow control for reducing acoustic loading and enhancing weapon separation from future strike platforms.</p> <p>FY 2012 Plans:</p>		0.567	11.680	59.004	-	59.004

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Air Force				DATE: February 2012		
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				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Continue work to develop and demonstrate flow control for reducing acoustic loading and enhancing weapon separation from future strike platforms. Continue development efforts for cargo type platforms. Begin combined inlet and large bypass ratio fan demonstration. FY 2013 Base Plans: Develop and assess detailed integrated flight and ground systems concepts for operationally responsive space lift. Develop a subscale vehicle to demonstrate the rocketback maneuver for reusable space access. Initiate efforts for precision air delivery capability for legacy mobility aircraft. Initiate development of advanced engine system design, integration, evaluation, interface control assessment, and testing to mature adaptive turbine engine technologies for advanced air vehicles (accelerate turbine engine activity to meet follow on activity need date). FY 2013 OCO Plans: N/A						
Title: Major Thrust 3. Description: Develop aircraft structures that have embedded components, which were previously separate components attached to the air platforms. FY 2011 Accomplishments: Completed assessment of test results for electronically scanned antenna array embedded in a load-bearing structure. Flight tested antenna integration into load-bearing structures. Initiated demonstration efforts for reliability of unitized multi-role structures. Demonstrated key high altitude persistent Intelligence, Surveillance, and Reconnaissance technologies. FY 2012 Plans: Flight test of antenna integration into load-bearing structures. Initiate demonstration efforts for reliability of unitized multi-role structures. Demonstrate key high altitude persistent Intelligence, Surveillance, and Reconnaissance technologies. FY 2013 Base Plans: Continue flight test of antenna integration into load-bearing structures. Complete demonstrations of key high altitude persistent Intelligence, Surveillance, and Reconnaissance technologies. Complete the demonstration of low band structurally integrated arrays and persistent multi-Intelligence platforms. Develop passive flow control		18.044	22.169	9.513	-	9.513

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Air Force				DATE: February 2012		
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				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
improvements for enhanced aero efficiency of legacy aircraft. Decrease in FY 2013 due to higher Department of Defense priorities. FY 2013 OCO Plans: N/A						
Title: Major Thrust 4. Description: Develop adaptive structures to provide in-flight modifications offering improved performance. FY 2011 Accomplishments: Furthered demonstration of technologies necessary for reusable hypersonic vehicles. Assessed integrated structural health management 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 2012 Plans: Further demonstrate technologies necessary for reusable hypersonic vehicles. Assess integrated structural health management for lightweight remotely piloted air vehicles from subsonic to hypersonic speeds. Develop and assess detailed integrated flight and ground systems concepts for operationally responsive space lift. FY 2013 Base Plans: Continue the development of integrated system health management and adaptive guidance and control for aerospace vehicles. Complete structural health management ground demonstration for reusable space access vehicle. Decrease in FY 2013 due to higher Department of Defense priorities. FY 2013 OCO Plans: N/A		11.064	11.627	1.139	-	1.139
Title: Major Thrust 5. Description: Develop, simulate, and demonstrate integrated technologies to enable, and improve the performance of high-speed and hypersonic air vehicles. FY 2011 Accomplishments:		7.556	8.092	6.304	-	6.304

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Air Force							DATE: February 2012				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 3: <i>Advanced Technology Development (ATD)</i>				R-1 ITEM NOMENCLATURE PE 0603211F: <i>Aerospace Technology Dev/Demo</i>							
C. Accomplishments/Planned Programs (\$ in Millions)							FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Continued efforts related to hypersonic ablation /shape-change measurement. Initiated work for expendable and reusable hypersonic air-breathing concepts. FY 2012 Plans: Continue efforts related to hypersonic ablation /shape-change measurement and prediction capabilities. Conduct hypersonic flight experiments. Continue efforts to study potential applications for utilizing high speed vehicles in Intelligence, Surveillance, and Reconnaissance and strike missions. FY 2013 Base Plans: Continue to demonstrate 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 2013 OCO Plans: N/A											
Accomplishments/Planned Programs Subtotals							49.428	67.474	81.376	-	81.376
D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
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.											