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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2013 Air Force	<b>DATE:</b> February 2012
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APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 3: <i>Advanced Technology Development (ATD)</i>				PE 0603203F: <i>Advanced Aerospace Sensors</i>							
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	42.105	121.666	37.657	-	37.657	31.366	29.808	33.499	34.675	Continuing	Continuing
63665A: <i>Advanced Aerospace Sensors Technology</i>	22.113	96.044	16.269	-	16.269	15.015	12.809	15.773	15.209	Continuing	Continuing
6369DF: <i>Target Attack and Recognition Technology</i>	19.992	25.622	21.388	-	21.388	16.351	16.999	17.726	19.466	Continuing	Continuing

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

Divided into two broad project areas, this program develops technologies to enable the continued superiority of sensors from aerospace platforms. The first project develops and demonstrates advanced technologies for electro-optical sensors, radar sensors and electronic counter-countermeasures, and components and algorithms. The second project develops and demonstrates radio frequency and electro-optical sensors for detecting, locating, and targeting airborne, fixed, and time-critical mobile ground targets obscured by natural or man-made means. Together, the projects in this program develop the means to find, fix, target, track, and engage air and ground targets anytime, anywhere, and in any weather. This program has been coordinated through the Reliance 21 process to harmonize efforts and eliminate duplication. This program is in Budget Activity 3, Advanced Technology Development, since it develops and demonstrates technologies for existing system upgrades and/or new sensor and electronic combat system developments that have military utility and address warfighter needs.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	44.677	53.075	52.615	-	52.615
Current President's Budget	42.105	121.666	37.657	-	37.657
Total Adjustments	-2.572	68.591	-14.958	-	-14.958
• Congressional General Reductions	-	-0.009			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.340	-			
• SBIR/STTR Transfer	-0.981	-			
• Other Adjustments	-0.251	58.600	-14.958	-	-14.958

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 63665A: *Advanced Aerospace Sensors Technology*

Congressional Add: *Program Increase*

Congressional Add: *Blue Devil 1*

FY 2011	FY 2012
-	10.000
-	58.600

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<b><u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u></b>		<b>FY 2011</b>	<b>FY 2012</b>
Congressional Add Subtotals for Project: 63665A		-	68.600
Congressional Add Totals for all Projects		-	68.600
<b><u>Change Summary Explanation</u></b>			
FY11: Other Adjustments include -0.251 Congressional General Reductions			
In FY 2012, Congress added \$10 million for Program Increase.			
In FY 2012, Congress transferred \$58.6 million from JIEDDO to PE 0305205F, Endurance Unmanned Aerial Vehicles, for the Blue Devil 1 program. Those funds have been subsequently moved from PE 0305205F to PE 0603203F for execution.			
Decrease in FY 2013 is due to higher Department of Defense priorities.			

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APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 3: Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603203F: Advanced Aerospace Sensors				PROJECT 63665A: Advanced Aerospace Sensors Technology			
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
63665A: Advanced Aerospace Sensors Technology	22.113	96.044	16.269	-	16.269	15.015	12.809	15.773	15.209	Continuing	Continuing
A. Mission Description and Budget Item Justification											
This project develops and demonstrates aerospace sensor and processing technologies for intelligence, surveillance, reconnaissance (ISR), target, and attack radar applications in both manned and unmanned platforms, including electro-optical sensors and electronic counter-countermeasures for radars. It provides aerospace platforms with the capability to precisely detect, track, and target both airborne (conventional and low radar cross-section) and ground-based, high-value, time-critical targets in adverse clutter and jamming environments. Project activities include developing multi-function radio-frequency systems including radar and electronic warfare technology. Desired warfighting capabilities include the ability to detect concealed targets in difficult background conditions.											
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2011	FY 2012	FY 2013	
Title: Major Thrust 1.								6.714	6.624	1.621	
Description: Develop and demonstrate technologies to provide precision position and timing information to enable distributed, layered sensing on large air and space vehicles in Global Positioning System (GPS) degraded/denied environments. Develop technologies to maximize positional accuracy, timing accuracy, and exploitation techniques to improve offensive and defensive combat capabilities. Simulate, develop, and demonstrate integrated navigation warfare technologies, to establish and maintain a military advantage in satellite-based navigation.											
FY 2011 Accomplishments: Designed reduced size, weight, and power for precision time, position, and velocity sensor consisting of a single integrated GPS and inertial sensor for stringent installation requirements characteristic of small remotely piloted aircraft (RPA) appropriate for distributed, layered sensing. Developed reference optimization components necessary to support bi-static and multi-static radar technologies. Evaluated progress and determined next spiral requirements. Demonstrated a constructive systems engineering model to assess assured reference techniques in terms of measures of performance and warfighter utility.											
FY 2012 Plans: Develop strategies to optimize reference technologies for distributed sensing missions. Explore alternatives when GPS is degraded or denied. Reduce size, weight, and power of inertial components. Enhance precision of GPS and non-GPS reference technologies. Continue development of reference optimization components necessary to support bi-static and multi-static radar technologies. Continue to evaluate progress and determine next spiral requirements.											
FY 2013 Plans:											

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Decrease in FY 2013 funding is due to higher Department of Defense priorities. Continue to develop strategies to optimize reference technologies for distributed sensing missions. Maintain/enhance performance while reducing size, weight, and power. Continue development of reference optimization components necessary to support bi-static and multi-static radar technologies.					
<b>Title:</b> Major Thrust 2.  <b>Description:</b> Conduct research and development for the advancement of passive and active RF sensors; including phenomenology, modeling and simulation, algorithm development, and experimentation. Note: In FY12 and out, this effort moves to PE 0602204F, Aerospace Sensors, Project 627622, Major Thrust 2.  <b>FY 2011 Accomplishments:</b> Utilized new multiple input-multiple output (MIMO) technology and waveform diversity techniques to provide a new degree of freedom to be leveraged in RF electronic warfare. Performed modeling, algorithm development, and experimentation in the area of RF Tomography for imaging and apply techniques to Ground Penetrating Radar (GPR) for deeply buried targets.  <b>FY 2012 Plans:</b> N/A  <b>FY 2013 Plans:</b> N/A			0.961	-	-
<b>Title:</b> Major Thrust 3.  <b>Description:</b> Develop active RF sensor solutions to use against difficult-to-detect targets in challenging environments, and advanced RF architectures for open and reconfigurable systems. Enable persistent ISR over wide areas, and detect advanced air and ground targets.  <b>FY 2011 Accomplishments:</b> Performed systems engineering studies on open RF systems architectures to support commonality among RF components. Developed and tested low band (UHF) structural aperture, and an active RF sensor resource management tool. Completed dismount detection systems engineering analysis and demonstration.  <b>FY 2012 Plans:</b> Initiate test and evaluation of dismount radar detection back end and algorithms in conjunction with the outdoor range. Initiate persistent multiple intelligence (multi-INT) sources layered sensing demonstration. Continue development of modular RF backend (demonstration of open systems architecture) for combined radar and signals intelligence (SIGINT) processing for eventual			8.171	15.927	8.844

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APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603203F: Advanced Aerospace Sensors	PROJECT 63665A: Advanced Aerospace Sensors Technology		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012	FY 2013
integration into the outdoor range. Provide systems engineering for development of integrated sensor for high altitude ISR. Initiate support and risk reduction efforts for a high altitude radar flight demonstration.  <b>FY 2013 Plans:</b> Complete development of modular RF backend (demonstration of open systems architecture) for combined radar and signals intelligence (SIGINT) processing and integrate into the outdoor range. Continue development and testing of a wide area staring radar.				
<b>Title:</b> Major Thrust 4.  <b>Description:</b> Develop advanced techniques and prototype passive RF sensors to intercept, collect, locate and track enemy RF sensor systems for intelligence, reconnaissance and surveillance of air and ground targets.  <b>FY 2011 Accomplishments:</b> Developed system engineering and flight test plan for passive multistatic radar flight demonstration. Developed Small remotely piloted aircraft (RPA) direction finding and geolocation system for VHF and UHF signals using in-house receivers and equipment to collect data and develop algorithms. Develop advanced electromagnetic methods for detecting difficult targets.  <b>FY 2012 Plans:</b> Complete system engineering and perform initial flight test of multistatic radar using existing aperture and receiver components. Collect flight data for small RPA direction finding and geolocation system process data using multiple algorithms. Demonstrate advanced electromagnetic methods for detecting difficult targets.  <b>FY 2013 Plans:</b> Complete flight test data collection of passive multistatic radar process data and develop algorithms for future multistatic radar systems.		3.902	3.606	3.675
<b>Title:</b> Major Thrust 5.  <b>Description:</b> Develop radio frequency (RF) and electro-optical (EO) sensor technology to detect, locate, and identify air and ground targets at long ranges, including those that are low-observable, or use deception or camouflage.  <b>FY 2011 Accomplishments:</b> Performed concept validation and signature utility experiments for long-range multi-spectral/polarimetric and synthetic aperture laser radar imaging. Conducted signature collection experiments with multi-spectral/polarimetric imaging systems to assess military utility. Began laboratory and field experiments for mitigating primary risk areas associated with synthetic aperture laser radar imaging from airborne platforms.  <b>FY 2012 Plans:</b>		0.771	0.826	2.129

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2011</b>	<b>FY 2012</b>
Perform concept validation and signature utility experiments for long-range synthetic aperture laser radar imaging. Continue laboratory and field experiments for mitigating primary risk areas associated with synthetic aperture laser radar imaging from airborne platforms. Initiate development of master oscillator technology.  <b>FY 2013 Plans:</b> Refine performance and signature models to validated requirements and concept of operations for long range synthetic aperture laser radar imaging. Continue laboratory and field experiments for mitigating primary risk areas associated with synthetic aperture laser radar imaging from airborne platforms.			
<b>Title:</b> Major Thrust 6.  <b>Description:</b> Develop electro-optical sensing technologies for surveillance, tracking, and identification of dynamic targets in urban areas from manned and unmanned platforms.  <b>FY 2011 Accomplishments:</b> Performed concept demonstration experiments, beginning with ground-based experiments, for exploiting novel temporal, spectral, and polarimetric discrimination based on infrared sensors to rapidly detect, locate, identify, and characterize battlefield targets and events in urban areas. Leveraged large format, infrared focal plane array technology developed under other component development projects and assessed utility for high altitude and space platforms.  <b>FY 2012 Plans:</b> Continue concept demonstration experiments for exploiting infrared persistent surveillance imagery to detect, track, and characterize targets in urban areas. Perform utility assessment experiments to quantify system performance, analyze human perception performance and develop image processing techniques. Continue proof-of-concept development of large format infrared camera technology for distributed airborne surveillance.  <b>FY 2013 Plans:</b> N/A. Effort terminated due to higher Department of Defense priorities.		1.594	0.461
<b>Accomplishments/Planned Programs Subtotals</b>		22.113	16.269
		<b>FY 2011</b>	<b>FY 2012</b>
<b>Congressional Add:</b> Program Increase		-	10.000
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> Conduct Congressionally-directed effort for Program Increase.			
<b>Congressional Add:</b> Blue Devil 1		-	58.600

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			<b>FY 2011</b>	<b>FY 2012</b>
<b>FY 2011 Accomplishments:</b> N/A				
<b>FY 2012 Plans:</b> Support Blue Devil 1 technology demonstration in theater.				
<b>Congressional Adds Subtotals</b>			-	68.600

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>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

**D. Acquisition Strategy**

N/A

**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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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
6369DF: Target Attack and Recognition Technology	19.992	25.622	21.388	-	21.388	16.351	16.999	17.726	19.466	Continuing	Continuing

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

This project develops and demonstrates advanced technologies for attack management, fire control, and target identification and recognition. This includes developing and demonstrating integrated and cooperative fire control techniques to provide for adverse-weather precision air strikes against multiple targets per pass and at maximum weapon launch ranges. Specific fire control technologies under development include attack management, sensor fusion, automated decision aids, advanced tracking for low radar cross section threats, and targeting using both on-board and off-board sensor information. This project also evaluates targeting techniques to support theater missile defense efforts in surveillance and attack. These fire control technologies will provide force multiplication and reduce warfighter exposure to hostile fire. This project also develops and demonstrates target identification and recognition technologies for positive, high confidence cueing, recognition, and identification of airborne and ground-based, high-value, time-critical targets at longer ranges than are currently possible. The goal is to apply these technologies to tactical air-to-air and air-to-surface weapon systems so they are able to operate in all weather conditions, during day or night, and in high-threat, multiple target environments. Model-based vision algorithms and target signature development techniques are the key to target identification and recognition. This project is maturing these technologies in partnership with the Defense Advanced Research Projects Agency and evaluating the techniques to support theater missile defense efforts in surveillance and attack. Fire control and recognition technologies developed and demonstrated in this project are high leverage efforts, providing for significant advancements in operational capabilities largely through software improvements readily transitionable to new and existing weapon systems.

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Major Thrust 1.	2.179	4.753	0.516
<b>Description:</b> Develop and demonstrate an automatic target recognition capability integrated with advanced geo-registration techniques and innovative change detection algorithms.			
<b>FY 2011 Accomplishments:</b> Determined the state-of-the-art technology capabilities and spirally developed enhancements to automatic target recognition, automatic target cueing, geo-registration, and change detection technology to meet warfighter needs. Conducted the assessment and enhancement of technology supporting time-critical targeting systems in the Air Force automatic target recognition test and evaluation facility. Conducted spiral development and validation of synthetic data generation capability critically needed to augment collected research, development, and operational data sets. Enhanced the Air Force automatic target recognition test and evaluation facility and data sets as required to support enhanced time-critical targeting capabilities. Conducted spiral development and assessment of time-critical targeting and advanced target tracking technologies required to meet warfighter requirements. Executed a laboratory demonstration of technology developed to date.			
<b>FY 2012 Plans:</b>			



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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012	FY 2013
Continue assessment and enhancement of technology supporting time-critical targeting systems for Planning & Direction, Collection, Processing & Exploitation, Analysis & Production, and Dissemination (PCPAD)Experimentation. Continue spiral development and validation of synthetic data generation capability critically needed to augment collected research, development, and operational data sets. Enhance the Air Force automatic target recognition test and evaluation facility and datasets as required to support enhanced PCPAD capabilities.  <b>FY 2013 Plans:</b> Continue to spirally develop enhancements to automatic target recognition, automatic target cueing, geo-registration, and change detection technology to meet warfighter needs. Continue assessment and enhancement of technology supporting time-critical targeting systems in automatic target recognition. Continue spiral development and validation of synthetic data generation capability critically needed to augment collected research, development, and operational data sets. Enhance the Air Force automatic target recognition test and evaluation facility and data sets as required to support enhanced time-critical targeting capabilities. Continue spiral development and assessment of time-critical targeting and advanced target tracking technologies required to meet warfighter requirements.				
<b>Title:</b> Major Thrust 2.  <b>Description:</b> Develop an advanced suite of sensors with automatic target recognition, fusion, and target tracking, all working in concert to provide a high-confidence identification capability.  <b>FY 2011 Accomplishments:</b> Identified candidate technologies to address deficiencies to improve aimpoint tracking, electro-optical automatic target recognition, synthetic aperture radar automatic target recognition, and the multi-sensor fusion algorithms. Predicted performance of the integrated technologies and system. Enhanced phenomenological modeling, target, and scenario databases and exploitation tools necessary to support technology development. Assessed the maturity of applicable technology via the Air Force automatic target recognition test and evaluation facility and other sensor test facilities.  <b>FY 2012 Plans:</b> Continue to identify candidate technologies to address deficiencies to improve aimpoint tracking, electro-optical automatic target recognition, synthetic aperture radar automatic target recognition, and the multi-sensor fusion algorithms. Predict performance of the integrated technologies and system. Enhance phenomenological modeling, target, and scenario databases and exploitation tools necessary to support technology development. Assess maturity of applicable technology.  <b>FY 2013 Plans:</b>		5.330	6.175	3.042

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012	FY 2013
Continue to identify candidate technologies to address deficiencies to improve electro-optical automatic target recognition, synthetic aperture radar automatic target recognition, and multi-sensor fusion algorithms.				
<p><b>Title:</b> Major Thrust 3.</p> <p><b>Description:</b> Develop an "identify friend, foe, or neutral" air-to-ground capability using cooperative and non-cooperative identification techniques.</p> <p><b>FY 2011 Accomplishments:</b> Began development of physics-based signature exploitation, modeling methods, and signal processing for feature-based recognition and fusion and applied these methods to sensor design to enable performance-based sensing. Began development of an integrated radar sensor signature exploitation and signal processing analysis capability for recognition applications including staring radar, Combat Identification (CID), Space Situational Awareness (SSA), measurement and signature intelligence (MASINT), and ISR applications. Developed efficient methods for collecting and processing radar sensor data for recognition. Began development of methods to analyze salient features to aid in the prediction, analysis, and processing capability as a function of sensor design parameters for performance-driven sensing. Developed a loosely coupled capability for multi-sensor measurement, processing, modeling, and analysis methods to support target recognition database development efforts and MASINT applications.</p> <p><b>FY 2012 Plans:</b> Continue development of physics-based signature exploitation, modeling methods, and signal processing for feature-based recognition and fusion and apply these methods to sensor design to enable performance-based sensing. Continue development of an integrated radar sensor signature exploitation and signal processing analysis capability for recognition applications including staring radar,CID, SSA, MASINT, and ISR applications. Continue to develop efficient methods for collecting and processing radar sensor data for recognition. Continue development of methods to analyze salient features to aid in the prediction, analysis, and processing capability as a function of sensor design parameters for performance-driven sensing. Continue to develop a loosely coupled capability for multi-sensor measurement, processing, modeling, and analysis methods to support target recognition database development efforts and MASINT applications.</p> <p><b>FY 2013 Plans:</b> Effort terminated due to higher Department of Defense priorities.</p>		1.005	0.977	-
<p><b>Title:</b> Major Thrust 4.</p> <p><b>Description:</b> Develop and assess multi-sensor automatic target recognition for intelligence, surveillance, reconnaissance, strike, and weapon systems.</p> <p><b>FY 2011 Accomplishments:</b></p>		3.542	4.776	7.807

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012	FY 2013
Conducted spiral development and assessment of multi-sensor automatic target recognition fusion algorithms. Conducted assessment of technology supporting intelligence, surveillance, reconnaissance, strike, and weapon systems using the Air Force automatic target recognition test and evaluation facility. Conducted spiral development and validation of synthetic data generation capability critically needed to augment collected research, development, and operational data sets. Began development of signature science for automatic target recognition database development. Developed an automatic target recognition fusion sensor data exploitation capability utilizing analysis and experimentation of data independence and interdependence of features to support development of an optimum data fusion exploitation capability. Enhanced the Air Force automatic target recognition test and evaluation facility and data sets as required to support enhanced automatic target recognition fusion capabilities. Determined technology shortfalls and developed automatic target recognition fusion technologies to overcome these shortfalls. Executed a laboratory demonstration of technology developed to date.  <b>FY 2012 Plans:</b> Continue spiral development and assessment of multi-sensor automatic exploitation algorithms. Continue assessment of technology supporting intelligence, surveillance, and reconnaissance systems. Continue development of an automatic target recognition fusion sensor data exploitation capability utilizing analysis and experimentation of data independence and interdependence of features to support development of an optimum data fusion exploitation capability. Determine technology shortfalls and develop automatic target recognition fusion technologies to overcome these shortfalls.  <b>FY 2013 Plans:</b> Continue spiral development and assessment of multi-sensor automatic exploitation algorithms in support of PCPAD. Continue assessment of technology supporting intelligence, surveillance, and reconnaissance systems. Continue development of an automatic target recognition fusion sensor data exploitation capability utilizing analysis and experimentation of data independence and interdependence of features to support development of an optimum data fusion exploitation capability for PCPAD. Determine technology shortfalls and develop automatic target recognition fusion technologies to overcome these shortfalls.				
<b>Title:</b> Major Thrust 5.  <b>Description:</b> Develop wide angle, continuous staring, multi-sensor/wavelength sensing and automated exploitation technology to detect, track, and identify targets over large areas at low sensor update rates.  <b>FY 2011 Accomplishments:</b> Developed, integrated, and tested to technology readiness level (TRL) 4, the next spiral engineering model of the multi-sensor, multi-wavelength wide-angle, continuously-staring capability building upon the technologies developed during the previous demonstration. Integrated, demonstrated, and tested the enhanced, TRL 4, wide angle, continuously-staring component technologies via a combination of exercises and scientific analyses in the Air Force automatic target recognition test and evaluation facility. Conducted spiral development of wide angle, continuous staring exploitation algorithms, phenomenological		2.615	3.771	6.225

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
modeling, target, and scenario databases necessary to support transition to the warfighter. Increased TRL to 4, demonstrated in a laboratory scenario, and evaluated results.  <b>FY 2012 Plans:</b> Develop, integrate, and test the next spiral engineering model of the multi-sensor, multi-wavelength wide-angle, continuously-staring capability building upon the technologies developed during the previous demonstration. Integrate, demonstrate, and test the enhanced wide angle, continuously-staring component technologies via a combination of exercises and scientific analyses. Continue spiral development of wide angle, continuous staring exploitation algorithms, phenomenological modeling, target, and scenario databases necessary to support transition to the warfighter.  <b>FY 2013 Plans:</b> Develop, integrate, and test the next spiral engineering model of the multi-sensor, multi-wavelength wide-angle, continuously-staring capability building upon the technologies developed during the previous demonstration. Continue to integrate, demonstrate, and test the enhanced wide angle, continuously-staring component technologies via a combination of exercises and scientific analyses. Continue spiral development of wide angle, continuous staring exploitation algorithms, phenomenological modeling, target, and scenario databases necessary to support transition to the warfighter.				
<b>Title:</b> Major Thrust 6.  <b>Description:</b> Develop active RF sensor solutions to use against difficult-to-detect targets in challenging environments, and advanced RF architectures for open and reconfigurable systems. Enable persistent ISR over wide areas, and detect advanced air and ground targets.  <b>FY 2011 Accomplishments:</b> Integrated, demonstrated, and tested real-time, wide angle, continuously-staring high band (X-Band) RF technology via a combination of exercises and scientific analyses in the Air Force automatic target recognition test and evaluation facility, increasing the TRL to 5, and demonstrated in a militarily significant scenario. Evaluated results, and began transition plan. Performed systems engineering for improved dual band (UHF/X) RF wide-angle, continuously-staring system.  <b>FY 2012 Plans:</b> Continue systems engineering and initiate development of dual-band wide-angle, continuously staring hardware and identify platform integration.  <b>FY 2013 Plans:</b> Complete development of dual-band system, and integrate on to identified platform.		5.321	5.170	3.798
<b>Accomplishments/Planned Programs Subtotals</b>		19.992	25.622	21.388

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Air Force										<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 3: <i>Advanced Technology Development (ATD)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603203F: <i>Advanced Aerospace Sensors</i>				<b>PROJECT</b> 6369DF: <i>Target Attack and Recognition Technology</i>				
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
	<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>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
<b>D. Acquisition Strategy</b> N/A												
<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.												