

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	10.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
4820 Sensor Development	8.693	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
4945 High Altitude Subsystems	1.319	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD

(U) **A. Mission Description and Budget Item Justification**

The RDT&E portion of this program element funds efforts to develop enhancements and sustain the U-2 Dragon Lady ISR system. In addition to on-going RDT&E activity, there are procurement and modification funds to support sustainability efforts. This program element will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to pursue joint, allied, and coalition interoperability. Budget Activity Justification - This program element is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development for the U-2 aircraft and related Intelligence Surveillance Reconnaissance (ISR) subsystems.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	10.013	0.000		
(U) Current PBR/President's Budget	10.012	0.000		
(U) Total Adjustments	-0.001			
(U) Congressional Program Reductions				
Congressional Rescissions	-0.001			
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				

(U) **Significant Program Changes:**

In FY06, all the U-2 Airborne Signals Intelligence Program (ASIP) development funding was transferred from the Dragon U-2 (JMIP) PE 0305202F, Project 674820 to the new Airborne SIGINT Enterprise PE 0304260F, and is distributed between Project 675181 (U-2 Integration) and Project 675183 (SIGINT Common Development).

In FY07, Air Force Transformation Flight Plan identified the U-2 Weapons System for early retirement, divesting the fleet by FY12. A plan, schedule, and budget are being developed to synchronize the U-2 retirement schedule to the Global Hawk (GH) development and fielding schedule in order to provide uninterrupted, high-altitude, ISR capabilities during the U-2 to Global Hawk transition. The DoD is committed to keeping the U-2 Fleet capable until it is removed from service. Accordingly, additional modifications and projects to support sustainability efforts will be required before FY12. These additional modifications and sustainability efforts will be considered during future budget year submissions.

Exhibit R-2a, RDT&E Project Justification

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February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
07 Operational System Development				0305202F Dragon U-2 (JMIP)				4820 Sensor Development			
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
4820 Sensor Development	8.693	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

This development project supports improvements and modifications to support sustainability efforts for the U-2 sensors such as the Advanced Synthetic Aperture Radar System (ASARS-2A), advanced radar technology research such as foliage penetration, concealed target, and counter deception, SIGINT programs, and works in close cooperation with the ASIP program (PE 0304260F).

The ASARS-2A Program improves area search, precision geolocation, and image quality to support precision guided munitions targeting. The system produces complex imagery, enabling enhanced exploitation methods. ASARS-2A introduces Asynchronous Transfer Mode (ATM) datalink formats to the ISR community and supports National Imagery Transmission Format (NITF) standards. Requirements include ASARS-2A sustainability issues, reliability improvements and exploitation tools for the user (for example, system robustness, Dual Data Link (DDL-2), Beyond Line of Sight (BLOS) communications, image quality, Ground Moving Target Indication (GMTI), geolocation and targeting, sensor position data, Receiver Exciter Controller (REC) upgrades and software upgrades). The ongoing ASARS-2A Image Quality Improvement Program (IQIP) addresses system robustness and image quality performance identified during initial system fielding.

The Senior Year Electro-Optical Reconnaissance System (SYERS-2/2A) Program includes upgrades such as multi-spectral collection and processing, polarization collection and processing, possible hyperspectral collection and processing, and the associated exploitation tools for the user. SYERS-2 also includes reliability, maintainability and sustainability upgrades that incorporate next generation technology to maintain and enhance system supportability. SYERS Polarimetric Improvement (SYERS P4I) investigates the potential for using polarimetric collection data to find man-made objects on the battlefield. A depot for the repair and refurbishing of SYERS sensors will be established and a second source vendor qualified for the focal planes.

The SIGINT Program develops new sensors such as the Airborne Signals Intelligence Program (ASIP), and maintains present sensor capability by developing replacements for current components affected by diminishing manufacturing sources as well as enhancing capability to exploit evolving signals of interest including Quick Reaction Capabilities (QRCs) to meet emerging operational requirements. The program has also examined and may modify current systems to allow them to function on Power/Electromagnetic Interference upgraded U-2 aircraft.

Plans for the testing and fielding of ASIP sensors on U-2 and Global Hawk are addressed in the Airborne SIGINT Enterprise exhibit (PE 0304260F).

All U-2 sensors and datalinks are being converted to the Asynchronous Transfer Mode (ATM) standard to address vanishing vendor issues and to optimize signals intelligence bandwidth allocation. Inherent in this transition is the incorporation of suitable security/encryption capabilities.

Budget Activity Justification - This program element is categorized as Budget Activity 7 because it provides for system development and sustainment of technologies and capabilities in support of operational system development for the U-2 intelligence surveillance and reconnaissance (ISR) system.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)	PROJECT NUMBER AND TITLE 4820 Sensor Development
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Advanced Synthetic Aperture Radar System (ASARS-2A) Image Quality Improvement Program (IQIP)	0.837			
(U) Senior Year Electro-Optical Reconnaissance System (SYERS-2/2A)	6.400			
(U) ASIP U-2 Integration	1.110			
(U) Other Program Management/Systems Engineering	0.346			
(U) Total Cost	8.693	0.000	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>									
(U) RDT&E, PE 0304260F											
Airborne SIGINT Development (ASIP)	1.972	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

* Development activity in FY07 and beyond for integration, flight testing, and fielding ASIP sensors on U-2 is funded under the Common Development Line 5183 in the ASIP PE 0304260. NOTE: Future year RDT&E funding requirements for efforts associated with U-2 system operation and modifications to support sustainment efforts will be addressed on an annual basis and will be linked to achievement of development, production and fielding milestones in the Global Hawk program.

(U) D. Acquisition Strategy
All contracts awarded based on full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development				0305202F Dragon U-2 (JMIP)						4820 Sensor Development				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>														
ASARS-2A Way Ahead Phase 2 Development	SS/CPIF	Raytheon, San Jose, CA		0.573	Aug-06							Continuing	TBD	TBD
SYERS-2A Development	SS/CPIF	BF Goodrich, Chelmsford, MA		5.716	Sep-06							Continuing	TBD	5.716
U-2 ASIP Integration	SS/CPIF	LM Aero, Palmdale, CA		1.110	Feb-06							Continuing	TBD	1.110
Subtotal Product Development			0.000	7.399		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:														
(U) <u>Test & Evaluation</u>														
SYERS-2A Flight Test	SS/CPFF	TBD		0.684	Feb-07							Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.684		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:														
(U) <u>Management</u>														
RSW/U2SF	C/FFP	Various		0.611	Dec-05							Continuing	TBD	TBD
Subtotal Management			0.000	0.611		0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			0.000	8.694		0.000		0.000		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305202F Dragon U-2 (JMIP)

PROJECT NUMBER AND TITLE

4820 Sensor Development



U.S. AIR FORCE

U-2

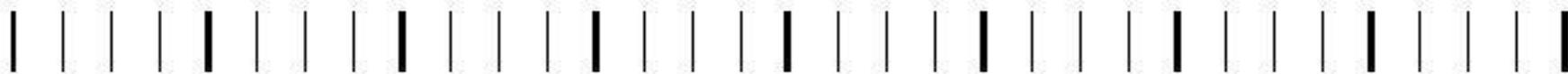
SYERS



ASARS-2A



ASIP



FY06

FY07

FY08

FY09

FY10

FY11

FY12

FY13

Integrity - Service - Excellence

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)	PROJECT NUMBER AND TITLE 4820 Sensor Development
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(U) Schedule Profile	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) SYERS Kit 105 Delivery		2Q		
(U) SYERS Kit 106 Delivery		3Q		
(U) SYERS ATM			1Q	
(U) ASARS-2A- Continue Image Quality Improvement Activities	1Q			
(U) ASARS-2A H/W Last Article		1Q		
(U) ASARS-2A S/W Final Delivery		3Q		
(U) ASIP Development - FAT	4Q			
(U) ASIP Development - Capability Demonstration		4Q		

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0305202F Dragon U-2 (JMIP)			PROJECT NUMBER AND TITLE 4945 High Altitude Subsystems		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4945 High Altitude Subsystems	1.319	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This project supports sustainment, development and integration of subsystems on the U-2 (e.g., cockpit upgrades that include a glass cockpit with Electro-Optical View Sight (EOVS), Direct Threat Warning, navigator upgrades, datalinks) and compliance with Communications, Navigation, Surveillance/Air Traffic Management CNS/ATM requirements.

EOVS was designed to replace the legacy optical drift sight that was removed in the U-2 Block 20 upgrade. The controls for the EOVS camera are in the legacy hand controller, and the image will be displayed in the cockpit on one Multi-function Display (MFD), when selected.

The Dual Data Link (DDL2) Program provides the capability to encrypt and transmit Intelligence Surveillance Reconnaissance (ISR) data via dual, simultaneous, independent wideband datalinks.

Budget Activity Justification - This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development for the U-2 aircraft.

(U) B. Accomplishments/Planned Program (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Dual Data Link 2 (DDL2) development	0.145			
(U) RSW/U2SF DSM	1.174			
(U) Total Cost	1.319	0.000	0.000	0.000

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) * APAF - BPAC 19RCON - Dual Data Link (DDL2)	15.255									
(U) APAF - BPAC 19RCON - ADS	8.239									

* Final DDL2 procurement efforts associated with recently completed development program.

NOTE: Future year RDT&E funding requirements for efforts associated with U-2 system operation and modifications to support sustainment efforts will be addressed on an annual basis and will be linked to achievement of development, production and fielding milestones in the Gloabl Hawk program.

(U) D. Acquisition Strategy

Utilize mix of sole source and open competition as appropriate for the U-2 program to sustain and update platform sub-systems as required in order to maintain

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07 Operational System Development

PE NUMBER AND TITLE

0305202F Dragon U-2 (JMIP)

PROJECT NUMBER AND TITLE

4945 High Altitude Subsystems

operational effectiveness.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development				0305202F Dragon U-2 (JMIP)						4945 High Altitude Subsystems				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> DDL2 EMD	SS/FFP	L3 Comm, Salt Lake City		0.145	Apr-06							0.000	0.145	TBD
Subtotal Product Development			0.000	0.145		0.000		0.000		0.000		0.000	0.145	TBD
Remarks:														
(U) <u>Test & Evaluation</u> Flight Test														TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	TBD
Remarks:														
(U) <u>Management</u> RSW/U2SF DSM	C/FFP	Various		1.174	Apr-06								1.174	TBD
Subtotal Management			0.000	1.174		0.000		0.000		0.000		0.000	1.174	TBD
Remarks:														
(U) Total Cost			0.000	1.319		0.000		0.000		0.000		0.000	1.319	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305202F Dragon U-2 (JMIP)

PROJECT NUMBER AND TITLE
4945 High Altitude Subsystems



U.S. AIR FORCE

U-2

EOVS



DDL



FY06

FY07

FY08

FY09

FY10

FY11

FY12

FY13

Integrity - Service - Excellence

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305202F Dragon U-2 (JMIP)

PROJECT NUMBER AND TITLE

4945 High Altitude Subsystems

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) EOVS EMD Contract Completion

3Q

(U) DDL2 EMD Contract Completion

1Q