PE NUMBER: 0604857F
PE TITLE: Operationally Responsive Space

Exhibit R-2, RDT&E Budget Item Justification

DATE: May 2009

BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE: 0604857F Operationally Responsive Space

	Cost ($ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
	Total Program Element (PE) Cost	86.985	196.561	112.861	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A015	ORS COMMON SERVICES	85.180	12.749	10.815	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A016	Operationally Responsive Lift	1.805	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A020	AF-funded ORSSats	0.000	183.812	102.046	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY2009, Project 64A020, AF-funded ORSSats was established to identify the funding the Air Force is planning to use for Air Force projects to meet ORS requirements.

In FY2009, Project 64A015 was renamed ORS Common Services from Tactical Satellites. This was to delineate the funding the Air Force is contributing to support the overall DoD ORS effort versus the funding the Air Force is using to pursue specific Air Force ORS projects.

(U) A. Mission Description and Budget Item Justification

The successful integration of space-based capabilities into the core of U.S. national security operations has resulted in dramatically increased demand for and dependence upon space capabilities. As a result, U.S. Strategic Command (USSTRATCOM) identified three needs: 1) to rapidly augment existing space capabilities when needed to expand operational capability; 2) to rapidly reconstitute/replenish critical space capabilities to preserve operational capability; 3) to rapidly exploit and infuse space technological or operational innovations to increase U.S. advantage. Operationally Responsive Space (ORS) is designed to both improve the responsiveness of existing space capabilities (e.g., space, launch, and ground segments) and to develop complementary, affordable small satellite/launch vehicle combinations, and associated ground and command and control systems, that can be deployed in operationally relevant timeframes.

ORS is defined as "assured space power focused on timely satisfaction of Joint Force Commanders' needs." The ORS goals are to: 1) Improve robustness--provide a focused, limited capability to augment and reconstitute, with assured warfighter access and control. 2) Respond to urgent needs--deliver effects to joint warfare in response to an urgent or previously unanticipated need. 3) Reduce development/deployment time and cost--complement existing space capabilities with an element focused on increased value and timely delivery. 4) Capitalize on emerging/innovative capabilities--adopt new capabilities from advanced technologies and innovative operational concepts.

When enabling responsiveness conditions are fully established, commanders will have three "tiers" of ORS capabilities for meeting urgent needs. Tier 1 involves employing existing, fielded space capabilities in a new and novel fashion within hours to days. Tier 1 solutions will not typically involve the design, engineering, or fabrication of new materiel items. Tier 2 involves deploying field-ready capabilities within days to weeks through rapid assembly, integration, testing, and deployment of small, low-cost satellites. Tier 3 involves developing new capabilities within a months-to-one-year timeframe. Tier 3 activities typically involve hardware and software design, engineering, fabrication, and integration. Insertion of advanced technology into Tier 3 systems must be consistent with the targeted timeframe for the solution.

The first ORS satellite (ORS-1) is an intelligence, surveillance and reconnaissance satellite to satisfy an urgent and compelling Combatant Commander requirement validated by USSTRATCOM. This project will directly support USCENTCOM and the on-going war on terrorism.

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space

ORS program funds (along with other Service and Agency funds) are programmed to systematically mature ORS enabling elements to meet the responsiveness timelines required by the USSTRATCOM CONOPS (hours, days, weeks, months...not years) and the price points established in the 2007 NDAA ($40M satellite vehicles, $20M launches). This includes the development of a modular open system architecture, including plug and play concepts, to enhance the rapid assembly and integration of mission-specific elements into operational satellites. The focus for ORS efforts will be the rapid satellite integration and test facility.

ORS funds will also aid in the leadership, coordination, and integration of Tier 1, 2, and 3 activities; fund TacSat and ORS launch vehicles and operations support; fund transition of TacSat demos to operational capabilities; and acquire and deploy operational satellites in response to USSTRATCOM urgent needs. When ORS-appropriate USSTRATCOM urgent needs arise during execution year, programmed ORS projects may be modified or delayed to meet those urgent needs.

This program is Budget Activity 04, Advanced Component Development and Prototypes, because it involves operational experimentation and evaluating integrated technologies to assess the performance or cost reduction potential of advanced technology.

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

		FY 2008	FY 2009	FY 2010
(U)	Previous President's Budget	96.516	110.032	115.394
(U)	Current PBR/President's Budget	86.985	196.561	112.861
(U)	Total Adjustments	-9.531	86.529	
(U)	Congressional Program Reductions		-0.136	
	Congressional Rescissions		-0.535	
	Congressional Increases		87.200	
	Reprogrammings	-8.788		
	SBIR/STTR Transfer	-0.743		

(U) Significant Program Changes:

FY2008: Reprogrammed -$1.9M to RSLP for Minotaur Life Extension Aging Surveillance; -$0.897M to O&M for civilian pay; and -$5.991M to higher DoD priorities.
FY2009: Congressional increases of $75.0M for IR sensor payload development, $5.0M for Low Earth Orbit Nanosatellite Integrated Defense Autonomous System, $2.4M for Chip Scale Atomic Clock, $2.4M for Ballistic Missile Technology, $1.6M for Florida National Guard (FLANG) Missile Range Safety Technology, and $0.8M for Micro-Satellite Serial Manufacturing.

Exhibit R-2a, RDT&E Project Justification

DATE: May 2009

BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE: 0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE: A015 ORS COMMON SERVICES

Cost ($ in Millions)		FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A015	ORS COMMON SERVICES	85.180	12.749	10.815	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY2009, Project 64A015 was renamed ORS Common Services from Tactical Satellites to delineate the funding the Air Force is contributing to support the overall DoD ORS effort versus the funding the Air Force is using to pursue specific Air Force ORS projects.

(U) A. Mission Description and Budget Item Justification

ORS Common Services supports the entire ORS partnership (Services, Intelligence Community, Reserve Component, NASA, and our Allies). These activities include studies and analysis to maintain the ORS investment roadmap and coordination and planning activities across the ORS Enterprise. ORS Common Services works with Joint Force Commanders (JFC) and the Services to identify the most likely emergent space needs, make plans and preparations to meet those needs, evaluate results of operational experimentation, and prepare plans and procedures for operational employment and transition. These foundational activities ensure ORS enabler investments are optimally targeted to quickly mature ORS's ability to execute rapid responses to time-critical needs when they arise. Common Services identifies and presents options for concepts/solutions and experimentation including international efforts, conducts concepts development, solutions assessment, rapid evaluation of alternatives, experimentation planning, modeling and simulation, and develops budgetary recommendations for ORS solutions.

Prior to FY09, Common Services supported Tier 1 employment and integration of new concepts and methods for enhancing the responsiveness of the existing capabilities and leveraged the TacSat investments from other sources by providing launch vehicles, lift, integration, and interim transitions to an operational capability in accordance with USSTRATCOM priorities/requests. Additionally, Common Services funded ORS ground processing, dissemination and command and control enabling capabilities to include software development, demonstrations, and modeling and simulation test beds.

(U)	B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010
(U)	Modeling, simulation, analysis, costing and assess utility for operationally responsive space concepts/requirements & program support	13.677	12.749	10.815
(U)	TacSat integration and support, launch vehicle, range operations, and related launch support	29.140		
(U)	JFC Needs	5.787		
(U)	Rapid development, integration, and launch demo on Falcon-1 (Jumpstart)	10.885		
(U)	Bus and payload enablers	6.705		
(U)	Launch and range enablers	0.814		
(U)	Responsive application of existing capabilities (Tier I)	1.472		
(U)	Demonstration/integration/transition into common ground processing, dissemination, and command and control systems	6.700		
(U)	Low Earth Orbit Nanosatellite Integrated Defense Autonomous Systems (LEONIDAS)	4.000		
(U)	Classified effort (per FY2008 congressional add)	6.000		
(U)	Total Cost	85.180	12.749	10.815

Exhibit R-2a, RDT&E Project Justification		DATE May 2009
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE A015 ORS COMMON SERVICES

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

	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total Cost
(U) None										

(U) D. Acquisition Strategy

Competitively award contracts through ORS Office or partner organizations.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: May 2009

BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE: 0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE: A015 ORS COMMON SERVICES

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
Jumpstart	various	various		10.885	Mar-08						10.885	10.885
JFC Needs	various	various		5.787	Dec-07						5.787	5.787
Responsive application of existing capabilities (Tier I)	MIPR	SPAWAR		1.472	Nov-07						1.472	1.472
Enablers for ground processing, dissemination and command and control	MIPR	SDTW, Kirtland AFB, NM		6.700	Nov-07						6.700	6.700
ORS support to RADARSAT-2	SS-FFP	MacDonald Dettwiler Assoc. Richmond, British Columbia	10.000								10.000	10.000
Bus & payload enablers	BAA	various		6.705	Jul-08						6.705	6.705
Launch & range enablers	BAA	various		0.814	Jul-08						0.814	0.814
LEONIDAS	MIPR	Sandia Nat'l Lab, Albq, NM		4.000	Mar-08						4.000	4.000
Classified effort (per FY2008 congressional add)				6.000							6.000	6.000
Subtotal Product Development			10.000	42.363		0.000		0.000		0.000	52.363	52.363
Remarks:												
(U) Support												
											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Test & Evaluation												
TacSat Launch Vehicle and Operations	C-FPIF	Orbital, Chandler AZ	9.100	29.140	Mar-08						38.240	TBD
Subtotal Test & Evaluation			9.100	29.140		0.000		0.000		0.000	38.240	TBD
Remarks:												
(U) Management												
Perform modeling, simulation, analysis and assess alternative concepts/requirements & program support	various	various	3.434	13.677	Jan-08	12.749	Oct-08	10.815	Oct-09	Continuing	TBD	TBD
Subtotal Management			3.434	13.677		12.749		10.815		Continuing	TBD	TBD
Remarks:												
(U)												
											0.000	
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000

Exhibit R-3, RDT&E Project Cost Analysis			DATE: May 2009
BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE: 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE: A015 ORS COMMON SERVICES	

Remarks:

(U) Total Cost	22.534	85.180	12.749	10.815	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile		DATE May 2009
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE A015 ORS COMMON SERVICES

U.S. AIR FORCE

Operationally Responsive Space
BPAC A015 Schedule

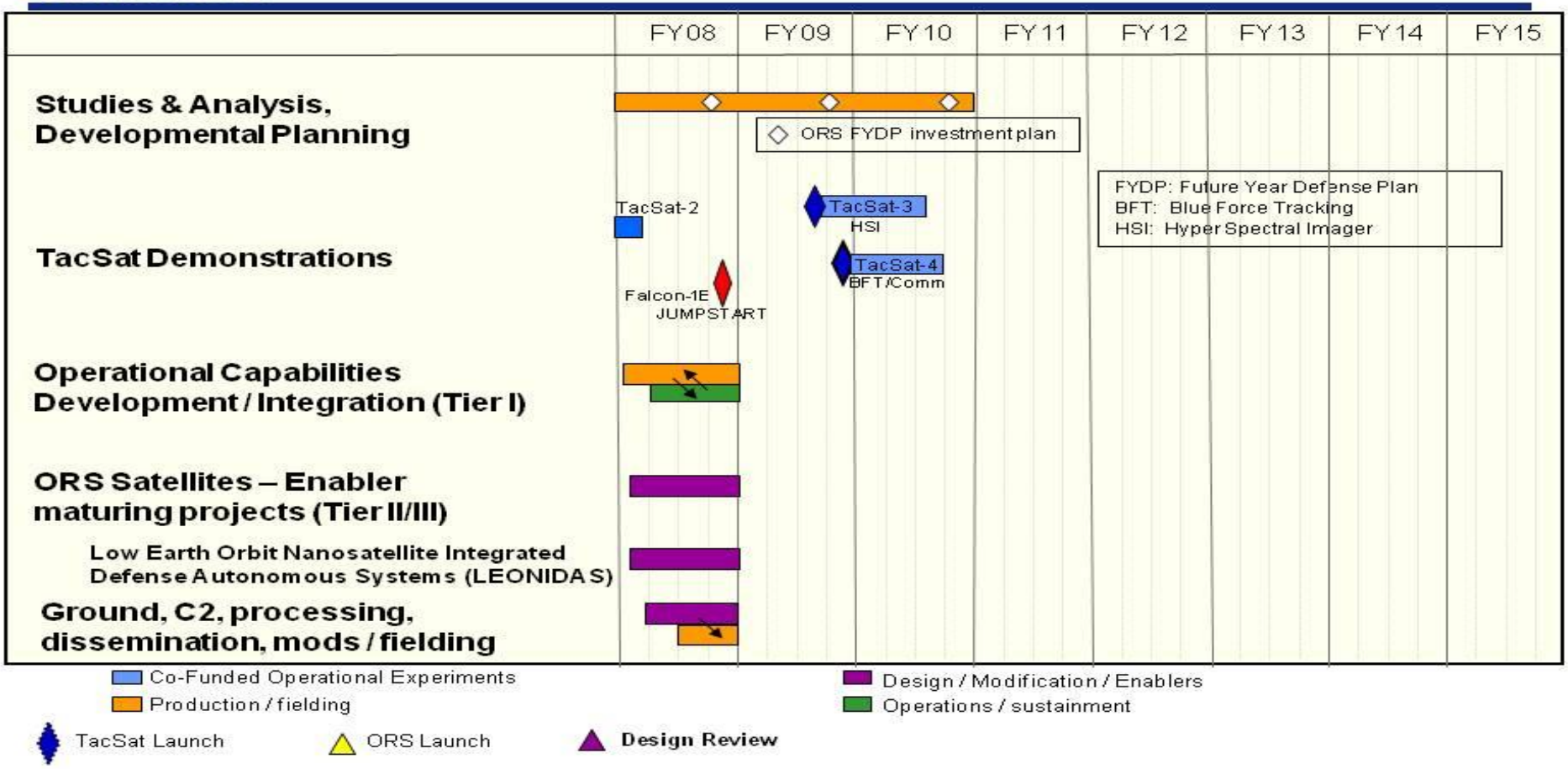

Exhibit R-4a, RDT&E Schedule Detail		DATE May 2009
BUDGET ACTIVITY **04 Advanced Component Development and Prototypes (ACD&P)**	PE NUMBER AND TITLE **0604857F Operationally Responsive Space**	PROJECT NUMBER AND TITLE **A015 ORS COMMON SERVICES**

(U)	**Schedule Profile**	FY 2008	FY 2009	FY 2010
(U)	TacSat-3 Launch		3Q	
(U)	TacSat-4 Launch		4Q	
(U)	Falcon-1E Jumpstart	4Q		
(U)	Tier 1 Capabilities Development	1-4Q		
(U)	Modeling, simulation, analysis and assessment of alternative concepts/requirements & program support	1-4Q	1-4Q	1-4Q
(U)	ORS FYDP investment plan update	4Q	4Q	4Q

Exhibit R-2a, RDT&E Project Justification

DATE: May 2009

BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE: 0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE: A016 Operationally Responsive Lift

Cost ($ in Millions)		FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A016	Operationally Responsive Lift	1.805	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The Operationally Responsive Space (ORS) program is the rapid reaction combination of payloads, launch systems, and ranges; optimized to provide surge operations, reconstitution capability, and exploitation of new technologies. This encompasses the spacelift missions of delivering payloads to, or from, mission orbit and changing the orbit of existing systems to better satisfy new mission requirements.

(U) B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010
(U) Continue Small Launch Vehicle (SLV) system design and development, systems engineering and engine static firings			
(U) Perform analysis, costing and assess utility for operationally responsive space concepts/requirements and Program Management support			
(U) TacSat-3&4 launch	1.805		
(U) Total Cost	1.805	0.000	0.000

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

	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total Cost
(U) N/A										

(U) D. Acquisition Strategy

Complete TacSat-3&4 launch operations in FY09 on existing contracts.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: May 2009

BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE: 0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE: A016 Operationally Responsive Lift

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
Falcon Phase II contractors:	OTA	Air Launch, Kirkland, WA	5.600							0.000	5.600	5.600
Classified effort (per FY 2007 congressional direction)	TBD	TBD	7.500								7.500	7.500
Subtotal Product Development			13.100	0.000		0.000		0.000		0.000	13.100	13.100
Remarks:												
(U) Support												
											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Test & Evaluation												
TacSat-3&4 launch	C-FPI	Orbital, Chandler, AZ	3.100	1.805						0.000	4.905	TBD
Subtotal Test & Evaluation			3.100	1.805		0.000		0.000		0.000	4.905	TBD
Remarks:												
(U) Management												
Perform analysis and assess alternative concepts/requirements & program support	various	various	3.397							0.000	3.397	3.397
Subtotal Management			3.397	0.000		0.000		0.000		0.000	3.397	3.397
Remarks:												
(U) Total Cost			19.597	1.805		0.000		0.000		0.000	21.402	TBD

Exhibit R-4, RDT&E Schedule Profile		DATE: May 2009
BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE: 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE: A016 Operationally Responsive Lift

U.S. AIR FORCE

Operationally Responsive Space
BPAC A016 Schedule

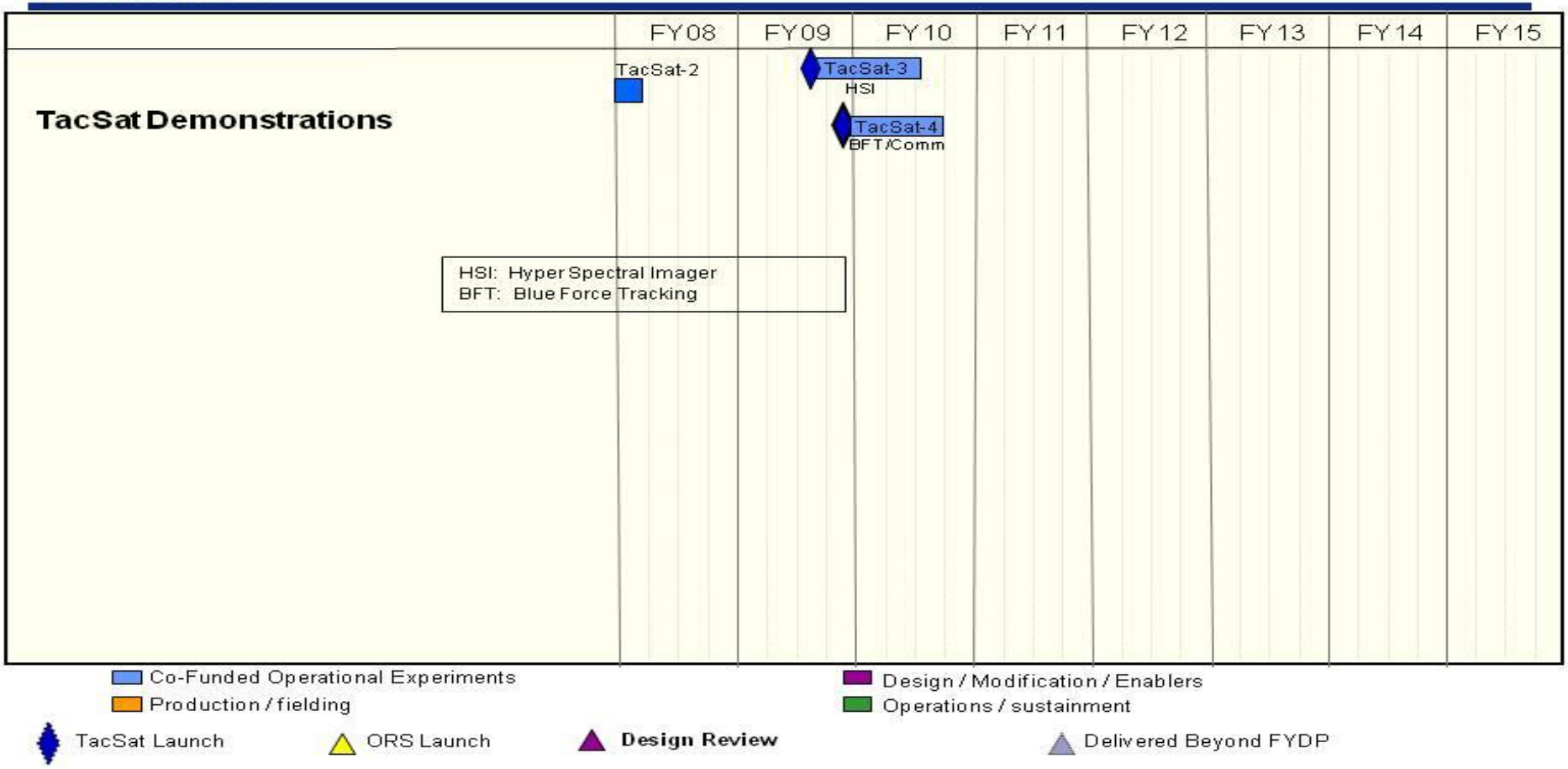

Exhibit R-4a, RDT&E Schedule Detail		DATE May 2009
BUDGET ACTIVITY **04 Advanced Component Development and Prototypes (ACD&P)**	PE NUMBER AND TITLE **0604857F Operationally Responsive Space**	PROJECT NUMBER AND TITLE **A016 Operationally Responsive Lift**

(U) Schedule Profile	FY 2008	FY 2009	FY 2010
(U) TacSat-3 Launch		3Q	
(U) TacSat-4 Launch		4Q	

Exhibit R-2a, RDT&E Project Justification			DATE: May 2009
BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE: 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE: A020 AF-funded ORSSats	

Cost ($ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A020 AF-funded ORSSats	0.000	183.812	102.046	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY2009, Project 64A020, AF-funded ORSSats was established to identify the funding the Air Force is planning to use for Air Force projects to meet ORS requirements.

(U) A. Mission Description and Budget Item Justification

AF-funded Operational Responsive Space projects are optimized for prioritized theater use and/or surge, augmentation and replenishment of traditional space capabilities. The ORS Concepts of Operation (CONOPS) drive the need for satellites featuring high degrees of modularity, standard interface vehicles, and the use of plug and play payloads and buses. Responsive satellites will be capable of rapid satellite initialization and be networked with other national security space, air and surface systems.

ORS projects provide a broad range of capabilities directly supporting warfighter needs. Potential missions include communications, data exfiltration, blue-force situational awareness, positioning, navigation and timing, weather, and battlefield intelligence, surveillance, and reconnaissance (ISR). The highest priority project is ORS-1 being fielded to respond to CENTCOM's urgent need to rapidly provide ISR for theater users. The remainder of the funding is for TacSat-4, to continue maturing the enabling elements for ORS-2, and to satisfy high priority needs for augmentation and reconstitution, such as Space Situational Awareness, Counterspace, ISR, and Missile Warning.

The capabilities planned for TacSat-4 and ORS-2 were selected to systematically mature the ORS enabling elements to fully meet the USSTRATCOM-specified responsiveness timelines and 2007 NDAA cost targets. This includes the development of a modular open system architecture employing plug and play standards, a rapid satellite integration and test facility, and integration with the Multi-Mission Satellite Operations Center.

Additionally, these funds will support on-going analyses, employment and integration of new concepts and methods for enhancing the responsiveness of the existing capabilities (Tier 1) and quick reaction opportunities such as the Jumpstart rapid development, integration and launch demonstrations. When ORS-appropriate USSTRATCOM urgent needs arise during execution year, programmed ORS projects may be modified or delayed to meet those urgent needs.

ORS Satellite Blocks include satellite vehicle(s), launch, integration, operational experimentation, and interim transitions from ORS derived solutions to operational capabilities. Each block also includes enabler investments to improve the responsiveness and lower the cost of designing, fabricating, launching, and operating ORS space capabilities. These blocks culminate in on-orbit capabilities ready for operational experimentation and, when desired, transition to enduring operations.

ORS is working in conjunction with Third Generation Infrared Surveillance system (3GIRS) to mature the technology for a wide field of view, Commercially Hosted IR Payload (CHIRP), including payload development, on-orbit testing, and algorithm development.

ORS is working with the University of Hawaii's (U of H) Hawaii Space Flight Laboratory (HSFL) and Sandia National Laboratory on the Low Earth Orbit Nanosatellite Integrated Defense Autonomous Systems (LEONIDAS) program. LEONIDAS is to design, fabricate, launch, and perform on-orbit operation of small- and micro-satellites for early detection of missile launches by hostile forces

Exhibit R-2a, RDT&E Project Justification		DATE May 2009
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE A020 AF-funded ORSSats

	B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010
(U)	Launch vehicles, range operations, and related launch support		29.952	20.000
(U)	Tier 1 operational capabilities, development, and integration		7.182	7.203
(U)	Bus and payload enablers		6.960	13.900
(U)	Rapid Response Space Capability			7.500
(U)	ORS-1 (ISR, JFC need #3)		46.033	31.885
(U)	JFC needs (#1 & #2)		2.800	2.500
(U)	Innovation Cell & TacSat Planning			1.000
(U)	Low Earth Orbit Nanosatellite Integrated Defense Autonomous Systems (LEONIDAS)		5.000	
(U)	Infrared Sensor Payload (CHIRP)		75.000	
(U)	Systems Engineering, launch & range, C², TPED enablers		3.685	18.058
(U)	Micro-sat Serial Manufacturing		0.800	
(U)	Chip Scale Atomic Clock		2.400	
(U)	Ballistic Missile Technology		2.400	
(U)	FLANG Missile Range Safety Technology		1.600	
(U)	Total Cost	0.000	183.812	102.046

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

	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total Cost
(U) AF RDT&E, PE 0604443F, 3GIRS		0.953	145.358						Continuing	TBD

(U) D. Acquisition Strategy

Expeditiously award contracts through ORS Office or partner organizations.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: May 2009

BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE: 0604857F Operationally Responsive Space

PROJECT NUMBER AND TITLE: A020 AF-funded ORSSats

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
ORS-1 (JFC need #3)	SS-CPFF	Goodrich, Danbury CT				46.033	Oct-08	31.885	Oct-09	Continuing	TBD	TBD
Bus & payload enablers	various	various				6.960	Dec-08	13.900	Oct-09	Continuing	TBD	TBD
Sys Eng, Launch & range, C², TPED enablers	various	various				3.685	Dec-08	18.058		Continuing	TBD	TBD
JFC needs (#1 & #2)	MIPR	AFRL, Kirtland AFB NM				2.800	Jan-09	2.500	Oct-09	Continuing	TBD	TBD
Rapid Response Space Capability	TBD	TBD						7.500	Dec-09	Continuing	TBD	TBD
Tier 1 operational capabilities, development, and integration	various	various				7.182	Oct-08	7.203	Oct-09	Continuing	TBD	TBD
Innovation Cell & TacSat Planning	various	various						1.000	Dec-09	Continuing	TBD	TBD
Micro-satellite serial manufacturing	MIPR	AFRL, Kirtland AFB, NM				0.800	Jan-09				0.800	0.776
Chip Scale Atomic Clock	MIPR	AFMC, Wright-Patterson AFB, OH				2.400	Jan-09				2.400	2.327
FLANG Missile Range Safety Technology	MIPR	FLANG, Patrick AFB, FL				1.600	Jan-09				1.600	1.522
Ballistic Missile Technology	Allot	SMC, Los Angeles AFB, CA				2.400	Jan-09				2.400	2.327
CHIRP	Allot	SMC, Los Angeles AFB, CA				75.000	Oct-08			Continuing	TBD	TBD
LEONIDAS	SS-CP	U of Hawaii, Honolulu, HI				5.000	Dec-08			Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		153.860		82.046		Continuing	TBD	TBD
Remarks:												
(U) Support												
											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Test & Evaluation												
ORS Sat / TacSat launch vehicles, range operations, and related launch support	IDIQ-FPIF	Orbital, Chandler, AZ				29.952	Nov-08	20.000	Oct-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		29.952		20.000		Continuing	TBD	TBD

Exhibit R-3, RDT&E Project Cost Analysis			DATE: May 2009
BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE: 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE: A020 AF-funded ORSSats	

	Remarks:							
(U)	Management							
							0.000	
	Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Remarks:							
(U)	Total Cost	0.000	0.000	183.812	102.046	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile		DATE May 2009
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604857F Operationally Responsive Space	PROJECT NUMBER AND TITLE A020 AF-funded ORSSats

Operationally Responsive Space
BPAC A020 Schedule

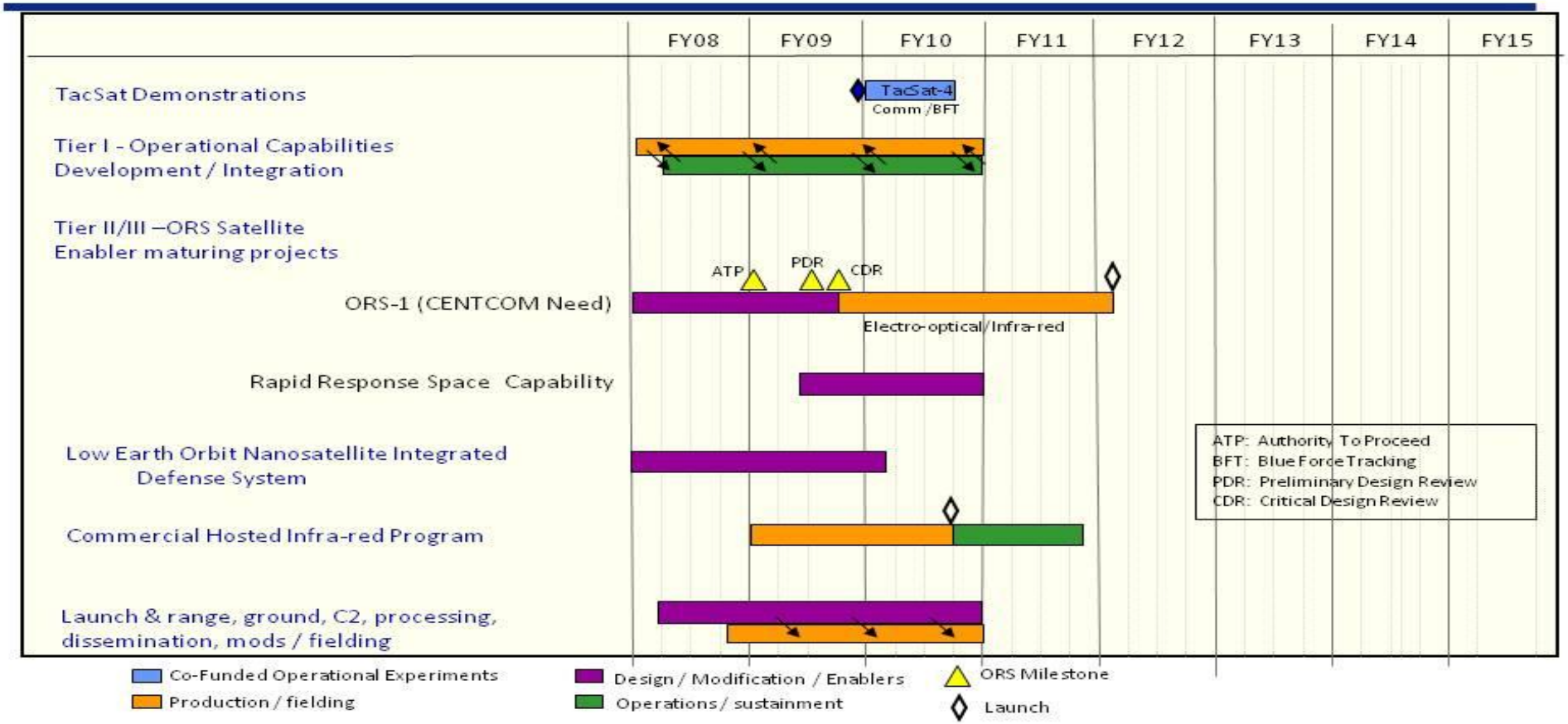

Exhibit R-4a, RDT&E Schedule Detail		DATE May 2009
BUDGET ACTIVITY **04 Advanced Component Development and Prototypes (ACD&P)**	PE NUMBER AND TITLE **0604857F Operationally Responsive Space**	PROJECT NUMBER AND TITLE **A020 AF-funded ORSSats**

(U) Schedule Profile	FY 2008	FY 2009	FY 2010
(U) Development of ORS-1 and enablers		1-4Q	1-4Q
(U) TacSat-4 launch and ops		4Q	1-4Q
(U) CHIRP launch and ops			3-4Q
(U) ORS launch/range, ground, command and control development		1-4Q	1-4Q