

UNCLASSIFIED

PE NUMBER: 0603438F
 PE TITLE: Space Control Technology

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology
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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	14.598	30.107	37.604	52.821	54.389	55.518	56.585	57.737	Continuing	TBD
2611 Technology Insertion Planning and Analysis	10.144	24.290	25.541	30.892	31.956	32.726	33.355	34.035	Continuing	TBD
A007 Space Range	4.454	5.817	12.063	21.929	22.433	22.792	23.230	23.702	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program supports a range of activities including technology planning, development, demonstrations and prototyping, as well as modeling, simulations and exercises to support development of tactics and procedures in the Space Control mission area. The types of Space Control activities accomplished are Space Situational Awareness (SSA), Defensive Counterspace (DCS), and Offensive Counterspace (OCS). For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space. DCS includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere and prevention activities that limit or eliminate an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. OCS activities disrupt, deny, degrade or destroy space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. Consistent with DOD policy, the negation efforts of this program currently focus on negation technologies which have temporary, localized, and reversible effects.

Also supported is the development of the technology and infrastructure for space control elements of the space range. This includes development and demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space control systems. Additionally, this program supports the development of test range assets required to support developmental and operational test, exercises, training, and tactics development for space control systems.

These two projects are in Budget Activity 4, Advanced Component Development and Prototypes, because they support the research, demonstration, component development and prototyping of Space Control technologies.

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04 Advanced Component Development and Prototypes (ACD&P)

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(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	15.606	27.076	37.252	52.179
(U) Current PBR/President's Budget	14.598	30.107	37.604	52.821
(U) Total Adjustments	-1.008	3.031		
(U) Congressional Program Reductions		-0.054		
Congressional Rescissions		-0.115		
Congressional Increases		3.200		
Reprogrammings	-0.601			
SBIR/STTR Transfer	-0.407			
(U) <u>Significant Program Changes:</u>				
FY 2006: Reprogram for higher Air Force priorities				
FY 2007: Congressional add for Multi-Mission Deployable Optical Sensor				

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603438F Space Control Technology				PROJECT NUMBER AND TITLE 2611 Technology Insertion Planning and Analysis		
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
2611 Technology Insertion Planning and Analysis	10.144	24.290	25.541	30.892	31.956	32.726	33.355	34.035	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program supports a range of activities including technology planning, development, demonstrations and prototyping, as well as modeling, simulations and exercises to support development of tactics and procedures in the Space Control mission area. The types of Space Control activities accomplished are Space Situational Awareness (SSA), Defensive Counterspace (DCS), and Offensive Counterspace (OCS). For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing objects and events in space. DCS includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere and prevention activities that limit or eliminate an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. OCS activities disrupt, deny, degrade or destroy an adversary's space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. Consistent with DOD policy, the negation efforts of this program currently focus on negation technologies which have temporary, localized, and reversible effects.

This project is in Budget Activity 4, Advanced Component Development and Prototypes because it supports the research, demonstration, component development and prototyping of Space Control technologies.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Space Situational Awareness efforts. Continue development of key space situational awareness enabling technologies	3.690	7.423	2.452	2.478
(U) Defensive Counterspace efforts. Continue vulnerability assessments, development and demonstration of advanced techniques and technologies for space control prevention systems	2.903	4.498	9.230	13.727
(U) Offensive Counterspace efforts. Continue development and demonstration of advanced counter- communications technologies and techniques, critical signal processing technology and advanced counter surveillance, reconnaissance techniques.	1.927	2.557	2.367	2.414
(U) Continue to conduct prototyping, demonstration, testing, and rapid transition of technology and techniques to space control systems.		7.585	8.455	8.590
(U) Program Office and Other Technical Support	1.624	2.227	3.037	3.683
(U) Total Cost	10.144	24.290	25.541	30.892

Exhibit R-2a, RDT&E Project Justification	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT NUMBER AND TITLE 2611 Technology Insertion Planning and Analysis
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(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) None

(U) **D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. Program consists of numerous small projects.

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Exhibit R-3, RDT&E Project Cost Analysis

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<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>														
SSA Development	Various	Various	9.323	3.690	Nov-05	7.423	Nov-06	2.452	Nov-07	2.478	Nov-08	Continuing	TBD	TBD
DCS Activities	Various	Various	22.223	2.903	Nov-05	4.498	Nov-06	9.230	Nov-07	13.727	Nov-08	Continuing	TBD	TBD
OCS Development	Various	Various	40.593	1.927	Nov-05	2.557	Nov-06	2.367	Nov-07	2.414	Nov-08	Continuing	TBD	TBD
Counterspace Technology Prototyping	Various	Various	0.000	0.000		7.585	Nov-06	8.455	Nov-07	8.590	Nov-08	Continuing	TBD	TBD
Subtotal Product Development			72.139	8.520		22.063		22.504		27.209		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u>														
Program Office and Other Technical Support	Various	SMC- El Segundo, CA	6.328	1.624	Nov-05	2.227	Nov-06	3.037	Nov-07	3.683	Nov-08	Continuing	TBD	TBD
Subtotal Support			6.328	1.624		2.227		3.037		3.683		Continuing	TBD	TBD
Remarks:														
<u>(U) Test & Evaluation</u>														
None														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000			0.000	0.000
Remarks:														
<u>(U) Management</u>														
Subtotal Management			0.000	0.000		0.000		0.000		0.000			0.000	0.000
Remarks:														
<u>(U)</u>														
Subtotal			0.000	0.000		0.000		0.000		0.000			0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			78.467	10.144		24.290		25.541		30.892		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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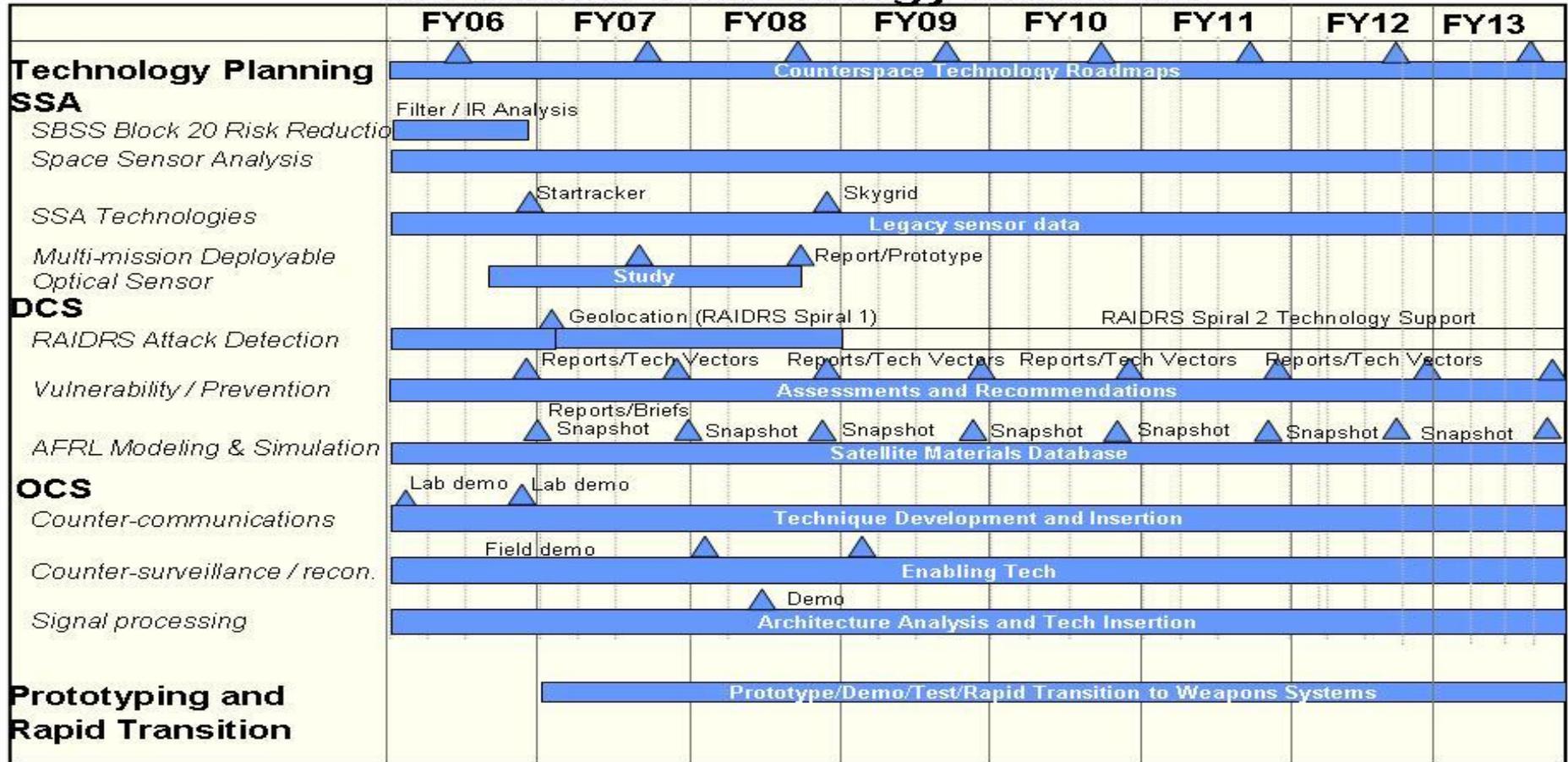
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2611 Technology Insertion Planning and Analysis

SCT

Schedule: Technology Insertion



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) Continue Technology Roadmaps & Planning	1-4Q	1-4Q	1-4Q	1-4Q
(U) SSA- Continue SBSS Risk Reduction	1-4Q			
(U) SSA- Continue sensor development	1-4Q	1-4Q	1-4Q	1-4Q
(U) SSA - Startracker Report	4Q			
(U) SSA - Skygrid Report			4Q	
(U) SSA - Multi-mission Deployable Optical Sensor Prototype			3Q	
(U) DCS - Continue RAIDRS/DCS technology development and evaluation	1-4Q	1-4Q	1-4Q	1-4Q
(U) DCS - Continue Vulnerability and threat assessment report	4Q	4Q	4Q	4Q
(U) DCS - Continue AFRL Data Modelling and Simulation Report	4Q	4Q	4Q	4Q
(U) OCS- Counter Communications technique development and demonstration -- lab demo	1-4Q	1-4Q	1-4Q	1-4Q
(U) OCS- Continue Counter Surveillance/Reconnaissance technology development	1-4Q	1-4Q	1-4Q	1-4Q
(U) OCS- Continue Signal Processing development - demo		2Q		
(U) Prototyping and Rapid Transition to Weapons Systems		1-4Q	1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603438F Space Control Technology				PROJECT NUMBER AND TITLE A007 Space Range		
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
A007 Space Range	4.454	5.817	12.063	21.929	22.433	22.792	23.230	23.702	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

This program supports the development of space test and training range capabilities required to support developmental and operational test, training, exercises and tactics development for Space Control systems and related architecture.

This project is in Budget Activity 4, Advanced Component Development and Prototypes because it supports the research, demonstration, component development and prototyping of Space Test & Training Range technologies & infrastructure.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Range Control - Development and acquisition of mobile, transportable, and fixed range monitoring and communications capabilities 3.977	0.861	1.413	4.040	7.677
(U) Targets - Development and acquisition of terrestrial-based and space-based target environments	2.500	2.613	4.011	8.585
(U) Threats - Development and acquisition of actual and representative threat systems and range protection	0.000	0.000	0.000	0.282
(U) Program Office and Other Technical Support	1.093	1.791	4.012	5.385
(U) Total Cost	4.454	5.817	12.063	21.929

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

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) None										

(U) **D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.

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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			
04 Advanced Component Development and Prototypes (ACD&P)										0603438F Space Control Technology		A007 Space Range			
(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>															
Leased Bandwidth	CPAF	G2 Satellite Systems, Long Beach, CA	2.860	2.500	Jan-06	2.613	Jan-07	4.011	Jan-08	4.200	Jan-09	0.000	16.184		
MCATS	CPAF	TMC, Las Cruces, NM	2.050	0.861	Jan-06	1.113	Jan-07	3.540	Jan-08	4.531	Jan-09	Continuing	TBD	TBD	
Space Range Operations Complex (SROC)	TBD	TBD				0.300	Jan-07	0.500	Jan-08	3.000	Jan-09	Continuing	TBD		
Ground Based Transponder System	TBD	TBD	4.519						Jan-08	4.531	Jan-09	Continuing	TBD		
Threats										0.282	Jan-09	Continuing	TBD		
System Integration (MAPIC)	CPAF	Northrup Grumman, El Segundo, CA	0.742										0.742		
Subtotal Product Development			10.171	3.361		4.026		8.051		16.544		Continuing	TBD	TBD	
Remarks:															
(U) <u>Support</u>															
Program Office and Other Technical Support	Various	SMC, El Segundo, CA	1.168	1.093	Dec-05	1.791	Dec-06	4.012	Dec-07	5.385	Dec-08	Continuing	TBD	TBD	
Subtotal Support			1.168	1.093		1.791		4.012		5.385		Continuing	TBD	TBD	
Remarks:															
(U) <u>Test & Evaluation</u>															
None													0.000		
None													0.000		
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) <u>Management</u>															
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:															
(U) Total Cost			11.339	4.454		5.817		12.063		21.929		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

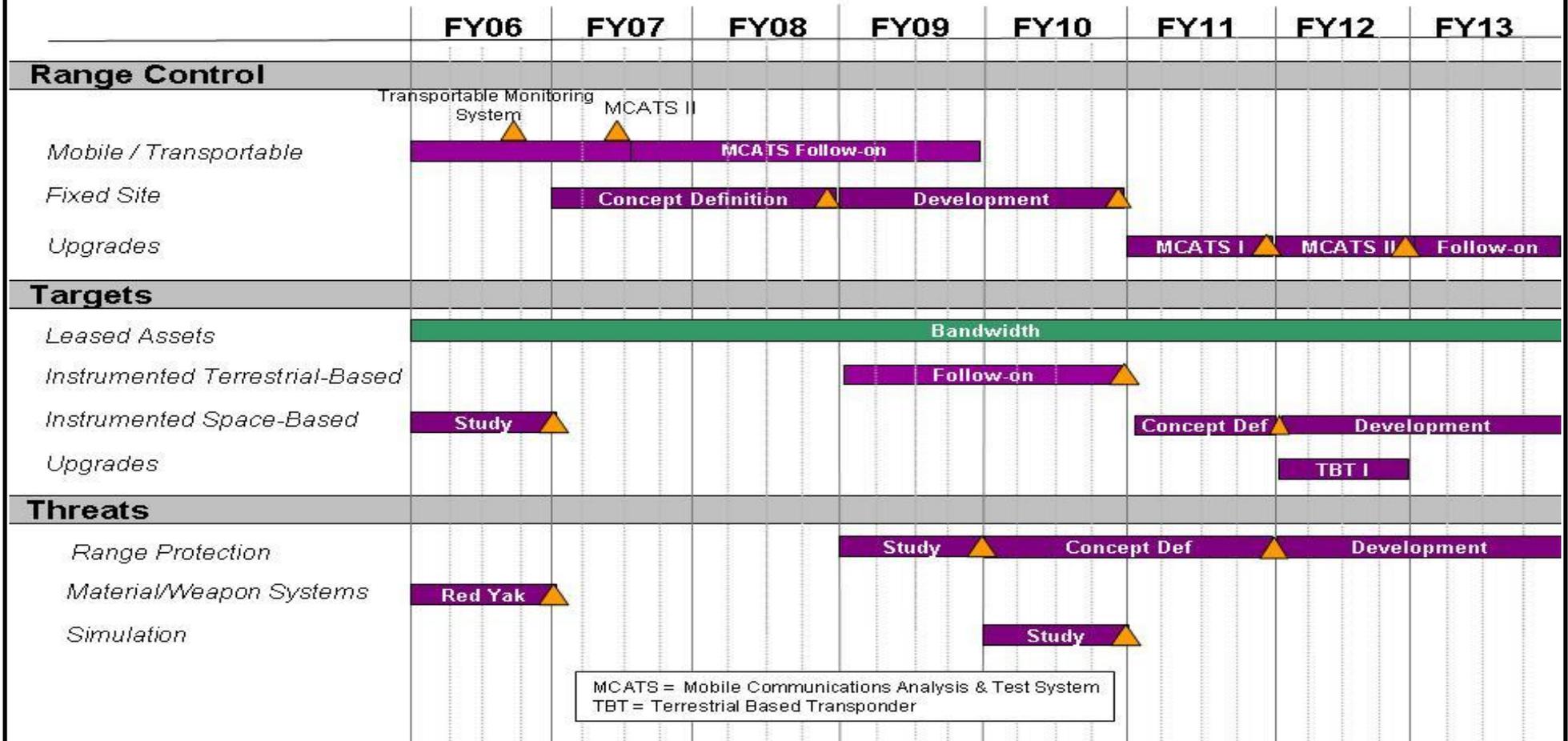
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BUDGET ACTIVITY
04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
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PROJECT NUMBER AND TITLE
A007 Space Range

SCT Schedule: STTR



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
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BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT NUMBER AND TITLE A007 Space Range
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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile				
(U) RANGE CONTROL				
(U) Develop Mobile /Transportable Systems	1-4Q	1-4Q	1-4Q	1-4Q
(U) Deliver Transportable Monitoring System	3Q			
(U) Deliver MCATS		2Q		4Q
(U) Develop fixed-site capability		1-4Q	1-4Q	1-4Q
(U) Deliver Space Range Operations Center concept			4Q	
(U) Develop Space Test and Training Range Architecture	1-4Q	1-4Q		
(U) TARGETS				
(U) Leased Assets	1-4Q	1-4Q	1-4Q	1-4Q
(U) Develop terrestrial based capabilities	1-4Q	1-4Q		
(U) THREATS				
(U) Develop range protection capabilities				1-4Q
(U) Deliver range protection study				4Q
(U) Develop material/weapon systems	1-4Q			