PE NUMBER: 0603438F PE TITLE: Space Control Technology

	RDT&E BUDGET ITEM	DATE	DATE February 2003												
04 - <i>A</i>	PE NUMBER AND TITLE 4 - Advanced Component Development and Prototypes  ACD&P)														
	COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost				
	Total Program Element (PE) Cost	28,967	13,609	14,714	15,786	14,168	23,035	30,556	40,275	Continuing	TBD				
2611	Technology Insertion Planning and Analysis	28,967	13,609	9,409	9,414	9,499	12,555	15,741	20,644	Continuing	TBD				
A007	Space Range	0	0	5,305	6,372	4,669	10,480	14,815	19,631	Continuing	TBD				
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0				

In FY 2004, Project A007, Space Range, was transferred from Project 2611 in this PE for efforts to develop the Space Range.

#### (U) A. Mission Description

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) (formally Surveillance), Defensive Counterspace (DCS) (formally Protection and Prevention), and Offensive Counterspace (OCS) (formally Negation). 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 focus only on negation technologies which have temporary, localized, and reversible effects. Also supported is the development of the system architecture 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 exercises, training, and tactics development for space control systems.

#### (U) B. Budget Activity Justification

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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Exhibit R-2 (PE 0603438F)

	RDT&E BUDGET ITEM JUSTIFICATION	N SHEET (R-2 Exhib	oit)	DATE <b>Febru</b>	ary 2003
04 -	GET ACTIVITY - Advanced Component Development and Prototypes CD&P)	PE NUMBER AND TITLE  0603438F Space Co	ontrol Techno	logy	-
(U)	C. Program Change Summary (\$ in Thousands)				
(U) (U) (U)	Previous President's Budget Appropriated Value Adjustments to Appropriated Value a. Congressional/General Reductions b. Small Business Innovative Research c. Omnibus or Other Above Threshold Reprogram d. Below Threshold Reprogram e. Rescissions Adjustments to Budget Years Since FY 2003 PBR	FY 2002 32,344 33,022 -1,421 -1,634 -1,000	FY 2003 13,814 13,814 -146 -59	FY 2004 13,750	<u>Total Cost</u> TBD
(U) (U)	Current Budget Submit/FY 2004 PBR  Significant Program Changes: None.	28,967	13,609	14,714	TBD
	Pag	ge 2 of 12 Pages		Exhibit R-2	? (PE 0603438F)

	RDT&E BUDGET ITEM	DATE	DATE February 2003								
	et activity Advanced Component Developmei D&P)	ontrol T	echnolo	gy		PROJECT <b>2611</b>					
	COST (\$ in Thousands)		FY 2003 Estimate	FY 2004 Estimate		FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
2611	Technology Insertion Planning and Analysis	28,967	13,609	9,40	9 9,414	9,499	12,555	15,741	20,644	Continuing	TBD

#### (U) A. Mission Description

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) (formally Surveillance), Defensive Counterspace (DCS) (formally Prevention and Protection), and Offensive Counterspace (OCS) (formally Negation). For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space. SSA technology development also supports the Space Based Space Surveillance (SBSS) program. 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. DCS technology development also supports the Rapid Attack Identification Reporting System (RAIDRS). 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 focus only on negation technologies which have temporary, localized, and reversible effects.

#### **Budget Activity Justification**

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) <u>FY 2002 (\$ in Thousands</u>)

( - )	(+		
(U)	\$0	Accomplishments/Planned Program	
	\$7,761	Accomplished threat warning and attack reporting AoA. Continued risk reduction activities, such as threat de-	etection and characterization
		technology demonstrations, 'red team' vulnerability assessments, system architecture development, acquisitio	on planning and preparation to
		support a Milestone B decision in FY03.	
(U)	\$7,150	Began the development and fielding of a small, mobile/transportable system to counter satellite communicati	ion systems. Developed and
		demonstrated advanced counter communications technologies and techniques.	
(U)	\$9,979	Began development and demonstration of a system to counter surveillance and reconnaissance (SR) satellite	systems. Participated in exercises
		and demonstrations of a counter (SR) system. Completed military utility analysis, risk reduction efforts, and	performed pre-concept exploration
Р	roject 2611	Page 3 of 12 Pages	Exhibit R-2A (PE 0603438F)

	RD	T&E BUDGET ITEM JUSTIFICATION	SHEET (R-2A Exhibit)	DATE February 2003
04 -	GET ACTIVITY - Advanced ( CD&P)	Component Development and Prototypes	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT <b>2611</b>
( <b>U</b> )	A. Mission Des	scription Continued		
(U)	FY 2002 (\$ in '	Thousands) Continued  and concept definition, system architecture developm  Continued to develop advanced counter-SR technique	ent, and planning to support FY02 and early FY03 decises.	ions for system development.
(U)	\$748	Continued development and demonstration of advance field begun in FY99 and not funded in FY00/01.	ed techniques and technologies for space control preven	tion systems in the laboratory and
(U)	\$3,329	Began development of the system architecture and ac	quisition of Space Control elements of the Space range. It is required to test, validate, and verify performance of in develop tactics for Space Control systems.	
(U)	\$28,967	Total		
(U)	FY 2003 (\$ in 7	Γhousands)		
U)	\$0	Accomplishments/Planned Program		
(U)	\$3,000	Continue vulnerability assessments. Includes vulnera DoD space systems: categorize effects for support to	abilities of space/link/ground segments of DoD space system Satellite-As-A-Sensor activities.	stems. Perform assessments on ne
(U)	\$2,897	<u> •</u>	d counter communications technologies and techniques, logies leading to future generation counter-communicati	· ·
(U)	\$2,112		anced counter surveillance, reconnaissance techniques.	Begin technology development an
(U)	\$1,500	Continue development and demonstration of advance	d techniques and technologies for space control preventing adversary use of blue systems on communications, se	•
(U)	\$4,100	Continue development of the system architecture and	acquisition of Space Control elements of the Space Ran as required to test, validate, and verify performance of in	ge. Continue demonstration of te
(U)	\$13,609	Total	,	
F	Project 2611	Page	e 4 of 12 Pages	Exhibit R-2A (PE 0603438F

	RDT&E BUD	GET ITEM	JUSTIFICAT	ION SH	EET (R-:	2A Exhil	oit)	DA	TE February	2003
BUDGET A 04 - Ad' (ACD&I	dvanced Component	Developme	nt and Prototy		NUMBER AND <b>303438F</b>		ntrol Tec	hnology	•	PROJECT <b>2611</b>
(U) <u>A. N</u>	Mission Description Contin	nued								
(U) FY: (U) \$0 (U) \$5,2 (U) \$3,5	Defensive systems. investigate developmed Includes of funding for the include counter-counter-counter-counter-counter-counter-counter-counter-systems.	Perform assessman tions in key techniques and techniques are account and techniques are accounted as a technique accounted as a t	I Program  fforts. Continue vul nents on new DoD sy nology areas such as ration of advanced technologies for deny ngineering leading te fforts. Continue dev emand communication systems and advance weapons systems. Continue capacity systems and advance weapons systems. Conternations are capacity experienced are control architecture.	pace systems data fusion, echniques an ing adversar o an overall selopment an ions techniqued target chardontinue developments and continue developm	Begin look data mining, and technologicy use of blue Space Control demonstrates. Continue acteristics. Isolopment of ce techniques.	ing at protect radiation effe es for space of systems on cell architecture ion of advance exploring ten includes deveritical signal Begin technical capabi	control preversions lead to control preversions lead counter-chnologies lead to processing to cology development.	s against optical energy impacts on systems in ons, sensor, and communication eading to future ountermeasure echnology. Coopment and der des funding for	al jammers. Continues, anomaly resolution, anomaly resolution the laboratory and navigation platforms technologies and egeneration into antinue to develop, monstration of future architectural engines.	nue on. Continue nd field. rms. Includes d techniques, prototype, and re generation
(U) \$60	OO Space Sit	uational Awaren	ess efforts. Continussing, verifying, cate	e developme	nt of key spa	ce situational	awareness e	nabling techno	ologies for monitor	
(U) \$9,4	•	<i>C</i> , <i>C</i> ,	<b>,</b> ,	<i>C C</i> ,				1	1	
(U) <u>B. P</u>	Project Change Summary									
(U) None (U) <b>D. A</b>		FY 2002 FY Actual Est	2003 FY 2004 imate Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate he maximum	FY 2008 Estimate extent possi	FY 2009 Estimate ble.	Cost to Complete	Total Cos
Projec	ct 2611			Page 5 of	12 Pages				Exhibit R-2A (PI	E 0603438F)

RDT&E BUDGET ITEM JUSTIFIC	DAT	DATE February 2003										
BUDGET ACTIVITY 04 - Advanced Component Development and Prof (ACD&P)	totypes	PE NUMBER AND TITLE								•		JECT
(U) E. Schedule Profile												
		FY	2002			FY	2003			FY	2004	
	1	2	3	4	1	2	3	4	1	2	3	4
(U) AFSPC Space Control Mission Area Plan Completion (U) Protection		*										
(U) Potential attack reporting solutions and architecture studies com	plete	*										
(U) Begin development of threat warning and attack reporting archit	tecture	*										
(U) Satellite as a Sensor evaluations complete							X					
(U) Prevention												
U) Continue development of advanced techniques and technologies	3				*						X	
U) Evaluate interim report							X					
U) Negation												
(U) Begin Advanced Technology development for negation systems	1		*		*							
U) Begin development of a Counter-Communications system	c *		*									
U) Complete Counter- Surveillance/Recon Military Utility Analysis	S *		*									
<ul><li>(U) Acquisition decision to enter Counter-SR system development</li><li>(U) New start for Counter-SR system development</li></ul>				*								
U) Vulnerability Assessment reports								X				X
U) Space Range								Λ				Λ
U) System acquisition new start		*										
(U) Continue development of system architecture including SSA ele	ements											
U) Continue demonstration of test assets						X						
(U) Continue developing test range technologies and systems						X						
* = Completed Event $X$ = Scheduled Event												
D : 10044	-	- 0.15						_		D 04 /D	<b>5</b> 0000	100E)
Project 2611	Pag	ge 6 of 12	Pages					Ŀ	=xhibit i	R-2A (P	E 0603	438F)

	RDT&E PROG	RAM ELE	MENT/P	ROJECT C	OST BI	REAKDO	WN (R-3)		DATE <b>F</b>	ebruary 2	2003
04 -	EET ACTIVITY  Advanced Compone  D&P)	,	,	PROJECT <b>2611</b>							
(U)	A. Project Cost Breakdown	(\$ in Thousan	ds)								
							<u>FY 2</u>	2002	FY 20	003	FY 2004
	Surveillance technology asse		•					0		0	600
	Protection technology assess:						7.	,761	3,0		5,267
	Negation technology develop			-					5,0	09	3,542
	Counter Communications sys							,150		0	0
(U)	Counter Surveillance/Reconr 0604421F in FY03)	naissance techno	logy and syste	em development (1	moved to P	E	9,	979		0	0
(U)	Prevention technology develo	opment (FY04 is	ncluded in DC	S)				748	1,5	00	0
	Space Control Test Range	• ,		,			3.	,329	4,1	00	0
	Total						28,	967	13,6	09	9,409
( <b>U</b> )	B. Budget Acquisition History	ory and Plannin	g Informatio	n (\$ in Thousand	<u>s)</u>						
<b>(U)</b>	<b>Performing Organizations:</b>										
	Contractor or	Contract									
	Government	Method/Type	Award or	Performing	<b>Project</b>						
	Performing	or Funding	<b>Obligation</b>	<b>Activity</b>	<b>Office</b>	Total Prior	<b>Budget</b>	<b>Budget</b>	<b>Budget</b>	Budget to	<u>Total</u>
	Activity	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	to FY 2002	FY 2002	FY 2003	FY 2004	Complete	<u>Program</u>
	Product Development Organi	zations									
	FFRDC, Various SETA, SPC	) Various				15,252	7,560	4,640	4,675	Continuing	TBD
	MAPIC	CPAF	Feb 02				12,882	8,049	3,434	Continuing	TBD
	AFRL	Various				10,948	6,868	200	400	Continuing	TBD
	Support and Management Or	<u>ganizations</u>									
	SMC	Various				356	935	720	900	Continuing	TBD
	AFRL	Various				0	722	0	0	Continuing	TBD
	Test and Evaluation Organiza	ations									
Pr	roject 2611			Page	e 7 of 12 Pa	ges			Exhil	oit R-3 (PE (	0603438F)

	OGRAM ELI	EMENT/F	ROJECT C	OST BREAKDO		DATE February 2003			
JDGET ACTIVITY 4 - Advanced Compo ACD&P)	nent Develop	ment and	Prototypes	PE NUMBER AND TITLE 0603438F Space	У	PROJECT <b>2611</b>			
Item Description Product Development Pro None Support and Management None	Contract Method/Type or Funding Vehicle operty t Property	Award or Obligation Date	<u>Delivery</u> <u>Date</u>	Total Prior to FY 2002	Budget FY 2002	Budget FY 2003	Budget FY 2004	Budget to Complete	<u>To</u> <u>Progr</u>
Test and Evaluation Prop None  Subtotals Subtotal Product Develop Subtotal Support and Man Subtotal Test and Evaluat Total Project	oment nagement			Total Prior to FY 2002 26,200 356 26,556	Budget FY 2002 27,310 1,657 28,967	Budget FY 2003 12,889 720 13,609	Budget FY 2004 8,509 900 9,409	Budget to Complete TBD TBD	To Progr TE TE
Project 2611			Pag	e 8 of 12 Pages			Exhib	it R-3 (PE 060	03438F

	RDT&	E BUDGET ITEM	JUSTIF	ICATIO	ON SHE	ET (R-	2A Exh	ibit)		DATE	Februar	y 2003
04 -	GET ACTIVITY  Advanced Com  D&P)	ponent Developme	nt and P	rototype	<b>=</b>	IUMBER AND 13438F		ontrol T	echnolo	gy		PROJECT <b>A007</b>
	COST (\$ in <sup>-</sup>	Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
A007	Space Range		0	0	5,305	6,372	4,669	10,480	14,815	19,631	Continuing	TBD
	7 2004, Project 2611, Tree activities into Project	Technology Insertion Plannist A007, Space Range.	ng and Ana	lysis was cl	hanged to se	eparate activ	vities for ea	se of descri	ption and e	xecution by	transferring	g the Space
(U)	Budget Activity Justi This project is in Bud	ts the development of test ra	omponent l	•	••		C.	•	•		·	evelopment and
(U) (U) (U) (U)	FY 2002 (\$ in Thous \$0 \$0 \$0	ands) Accomplishments/Planned Activity Accomplished in Total	_	1								
(U) (U) (U) (U)	FY 2003 (\$ in Thous \$0 \$0 \$0	ands) Accomplishments/Planned Activity in Project 2611 Total	l Program									
(U) (U) (U)	FY 2004 (\$ in Thous \$0 \$4,500 \$705	ands) Accomplishments/Plannec Continue development of assets, special test equipm Program Office Support	the system									
(U) (U)	\$100 \$5,305	Exercise and demonstration Total	n support									
Р	roject A007				Page 9 of 1	2 Pages				Exh	ibit R-2A (F	PE 0603438F)

	RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)												1
04	GET ACTIVITY - Advanced Componer CD&P)	nt Develop	ment and	d Prototy	pes	PE NUMBER AN <b>0603438F</b>		ontrol Ted	hnology		-	PRO. <b>A0</b> (	JECT <b>07</b>
(U)	B. Project Change Summar	y											
(U) (U) (U)	C. Other Program Funding  AF RDT&E Other APPN	Summary (\$ FY 2002 Actual	in Thousand FY 2003 Estimate	FY 2004 Estimate	FY 20 Estim		FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	<u>Cos</u> Com <sub>l</sub>	st to olete	<u>T</u>	otal Cost
(U)	D. Acquisition Strategy All contracts funded in this pro	ogram elemen	t will be awa	rded using c	ompetitiv	ve procedures to	the maximum	n extent poss	ble.				
(U) (U) (U)	E. Schedule Profile  Continue demonstration of test Continue developing test range.		s and systems	3	1	FY 2002 2 3	4	1 2 FY 2	003 3 4	1 X	FY 2 2 X	2004 3 X X	4 X X
F	Project A007				Page 1	10 of 12 Pages				Exhibit I	R-2A (P	E 06034	438F)

	RDT&E PROG	RAM ELE	MENT/P	ROJECT C	OST BI	REAKDO	WN (R-3)		DATE <b>F</b>	ebruary 2	003
04 -	GET ACTIVITY  - Advanced Compone  CD&P)	nt Developı	ment and	Prototypes		er and title 38F Space	Control T	echnolog	y		PROJECT A007
(U)	A. Project Cost Breakdown	ı (\$ in Thousan	ds)								
(U) (U) (U) (U)	Space Control Test Range de Program Office Exercise and Demonstration Total	-					FY 2	0 0 0 0 0	FY 20	03 0 0 0 0	FY 2004 4,500 705 100 5,305
(U)	B. Budget Acquisition Histo	ory and Plannin	g Informatio	on (\$ in Thousand	<u>s</u> )						
(U)	Performing Organizations: Contractor or Government Performing Activity Product Development Organi MAPIC Support and Management Organi SMC/FFRDC/SETA Test and Evaluation Organization	ganizations	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 2002 0	Budget FY 2002 0	Budget FY 2003 0	Budget FY 2004 4,500 805	Budget to Complete Continuing Continuing	<u>Total</u> <u>Program</u> TBD TBD
(U)	Item Description Product Development Propert None Support and Management Pro None	Contract Method/Type or Funding Vehicle ty	Award or Obligation Date	<u>Delivery</u> <u>Date</u>		Total Prior to FY 2002	Budget FY 2002	Budget FY 2003	Budget FY 2004	Budget to Complete	<u>Total</u> <u>Program</u>
P	roject A007			Page	11 of 12 Pa	nges			Exhib	oit R-3 (PE 0	603438F)

RDT&E PROGRAM ELEMENT/PROJECT (	OST BREAKDOWN (R-3)			DATE February 2003		
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE  0603438F Space	Control T	echnolog		F	PROJECT <b>4007</b>
(U) Government Furnished Property Continued:  Test and Evaluation Property None  Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project	Total Prior to FY 2002 0 0 0	Budget FY 2002 0 0	Budget FY 2003 0 0	Budget FY 2004 4,500 805 5,305	Budget to Complete TBD TBD TBD	Tota Prograt TBD TBD TBD
Project A007 Pag	ge 12 of 12 Pages			Exhib	it R-3 (PE 06	603438F)