PE NUMBER: 0603854F

PE TITLE: Wideband MILSATCOM (Space)

	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \										
	Ex	hibit R-2, I	RDT&E Bu	ıdget Item	Justificat	tion			DATE	February 2	2005
	T ACTIVITY  vanced Component Developmen	nt and Proto	types (ACD	&P)		BER AND TITLE <b>4F Wideban</b>		OM (Space)			
	Cost (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to	Total
		Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	Į.
	Total Program Element (PE) Cost	35.621	69.386	93.858	37.672	5.742	6.392	6.485	6.555	Continuing	TBD
4811	Wideband Gapfiller	0.000	49.267	89.941	30.662	0.000	0.000	0.000	0.000	0.000	330.640
4870	Command & Control System Consolidated (CCSC)	35.621	20.119	3.917	7.010	5.742	6.392	6.485	6.555	Continuing	TBD

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

Provide the DoD with high data rate (Wideband) MILSATCOM services in accordance with the Joint Requirements Oversight Council (JROC), Joint Space Management Board approved MILSATCOM Architecture (Aug 96), the MILSATCOM Capstone Requirements Document (CRD) approved by the JROC in Oct 97, and JROC approved WGS Operational Requirements Document (May 00).

The Wideband Gapfiller System (WGS) will augment the DoD's Defense Satellite Communications System (DSCS) X-band and Global Broadcast Service (GBS) Ka-band capabilities. In addition, WGS will provide a new two-way Ka-band service. The first WGS launch is scheduled for Dec 05, launch of second satellite is scheduled for Aug 06, and launch of third satellite is scheduled for no later than Jan 07. In Dec 02, OSD directed the addition of two more WGS satellites as part of the transformational communications architecture; satellites 4 and 5 will support increased bandwidth requirements for the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for FY2009-2010.

The MILSATCOM Command and Control System-Consolidated (CCS-C) system is being acquired to provide integrated launch and on-orbit command and control (C-2) functionality for MILSATCOM satellites as the current capability provided by the Air Force Satellite Control Network (PE0305110F) for MILSATCOM satellites phases out according to plan. CCS-C will use modified commercial off the shelf hardware/software to control all emerging and legacy MILSATCOM systems to include Milstar, Defense Satellite Communications System (DSCS), WGS, and Advanced Extremely High Frequency (AEHF), at reduced operating and maintenance costs.

(U) Funding is in Budget Activity 4, Advanced Component Development and Prototypes to support:

WGS: Leveraging commercial technology and practices by modifying commercial satellites to

better support unique military requirements

CCS-C: Development phase

R-1 Shopping List - Item No. 52-2 of 52-12

Exhibit R-2, RDT&E Budget Ite	m Justification		DATE <b>Februa</b> i	y 2005
UDGET ACTIVITY 4 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603854F Wideband MILS	ATCOM (Space)		
U) B. Program Change Summary (\$ in Millions)				
	<u>FY 2004</u>	FY 2005	FY 2006	FY 2007
J) Previous President's Budget	36.271	73.499	15.950	9.290
J) Current PBR/President's Budget	35.621	69.386	93.858	37.672
J) Total Adjustments	-0.650	-4.113		
J) Congressional Program Reductions		-1.038		
Congressional Rescissions				
Congressional Increases				
Reprogrammings		-3.075		
SBIR/STTR Transfer	-0.650			
J) Significant Program Changes:				
FY06/07: Funds the cost growth and parts obsolescence redesign (Non Recurr	ring Engineering) effort due to the three	e year production ga	p between WGS satelli	te 3 and
satellites 4 /5.	<del>-</del>		-	

	Exhibit R-2a, RDT&E Project Justification  Exhibit R-2a, RDT&E Project Justification  February 2005											
BUDGET . <b>04 Adva</b>	ACTIVITY  anced Component Developmer	nt and Proto	types (ACD	&P)			≣ nd MILSATC		PROJECT NUMBE 1811 Wideban			
	Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate		Cost to Complete	Total	
4811	Wideband Gapfiller	0.000	49.267	89.941	30.662	0.000	0.000	0.00	0.000	0.000	330.640	
	Quantity of RDT&E Articles	0	0	0	0	0	0		0 0			

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

The Wideband Gapfiller System (WGS) will provide the DoD with high data rate military satellite communications (MILSATCOM) services in accordance with the Joint Space Management Board approved MILSATCOM Architecture dated Aug 96, the MILSATCOM Capstone Requirements Document approved by the Joint Requirements Oversight Council (JROC) in Oct 97, and the JROC approved WGS Operational Requirements Document (May 00). This program was conceived to augment the near term 'bandwidth gap' in Warfighter communications needs. The first WGS launch is scheduled for Dec 05, launch of second satellite is scheduled for Aug 06, and launch of third satellite is scheduled for no later than Jan 07. These dual frequency WGS satellites will augment the DoD's two-way Defense Satellite Communications System X-band service and one-way Global Broadcast Service Ka-band capabilities. In addition, WGS will provide a new high capacity two-way Ka-band service.

In Dec 02, OSD directed the addition of two more WGS satellites as part of the transformational communications architecture; satellites 4 and 5 will support increased bandwidth requirements for the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for FY2009-2010.

Funding is in Budget Activity 4, ACD&P, to support non-recurring engineering that maximizes commercial technology and practices to modify commercial satellites to better support military unique requirements.

J)	J) B. Accomplishments/Planned	Program (\$ in	Millions)				FY 20	<u>604</u> <u>F</u>	<u>Y 2005</u>	FY 2006	FY 2007
J)	J) Support Unmanned Aerial Vehi	cle (UAV) Byp	ass (Airborne l	Intelligence, Su	irveillance and				14.000	0.350	0.150
ı	Reconnaissance support) non-re	ecurring enginee	ring for satelli	tes 4 and 5							
J)	J) Perform payload/production stu	dies related to p	arts obsolesce	nce and non-re	curring engine	ering for			34.599	6.950	2.442
ı	satellites 4 and 5 and support de	evelopment of V	VGS control sy	stem							
J)	J) Provide Program Office Suppor	t							0.668	0.860	0.479
J)	J) Perform parts obsolescence rede	esign for satellit	es 4 and 5							81.781	27.591
J)	J) Total Cost						0.0	000	49.267	89.941	30.662
(T	J) C. Other Program Funding Su	ımmary (\$ in N	<u>(Iillions</u> )								
ı		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to	Total Cost
ı		<u>Actual</u>	<b>Estimate</b>	<b>Estimate</b>	<b>Estimate</b>	<b>Estimate</b>	<b>Estimate</b>	<b>Estimate</b>	<b>Estimate</b>	Complete '	Total Cost
J)	MPAF, PE 0303600F, WGS,	21.848	40.155	72.517	325.680	245.308	48.857	22.548	14.794	Continuing	TBD
1	P-19,20	21.010	10.133	72.317	323.000	213.300	10.057	22.3 10	11.771	Continuing	100
J)	J) OPAF, PE 0303600F, WGS PIPs	11.622	0.000	0.000	0.000	21.515	7.169			0.000	55.448
ı	Project 4811			R-1 Shoppi	ng List - Item No	. 52-4 of 52-12				Exhibit R-2a (P	E 0603854F)

	Exhibit	R-2a, RDT	&E Project	Justification	DATE	February 2	005
BUDGET ACTIVITY  04 Advanced Component Develop	ment and Pr	ototypes (A	CD&P)	PE NUMBER AND TITLI 0603854F Widebar (Space)	PROJECT NUME 4811 Wideba		
(U) <u>C. Other Program Funding Summ</u> (U) OPAF, PE 0303600F, CCS-C	nary ( <b>\$ in Mi</b> 8.203	<u>llions</u> ) 1.664	0.290	0.000		0.000	15.477

# (U) <u>D. Acquisition Strategy</u>

The WGS program will make maximum use of commercial practices and technology in its FAR Part 12, Firm Fixed Price (FFP) acquisition. The WGS received MS II/III approval in Nov 00 and awarded a FFP contract in Jan 2001. All five satellites will be purchased with Procurement funds, and the Non-Recurring Engineering (NRE) is funded with RDT&E.

Project 4811

	Exhibi	t R-3, RD	T&E Proj	ect Co	st Ana	lysis					DATE		ary 200	)5
BUDGET ACTIVITY  04 Advanced Component Deve	lopment and	Prototypes	(ACD&P)		060	IUMBER A 3854F W ace)		d MILSA	тсом			BER AND T	TITLE	
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions) (U) Product Development	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Parts Obsolescence Redesign WGS Satellite EMD UAV Bypass NRE Payload/Production Studies	FFP FFP FFP Various		143.008			14.000 34.599	Jan-05 Dec-04	6.950	Dec-05 Dec-05 Dec-05	27.591 0.150 2.442	Dec-06 Dec-06		109.372 143.008 14.500 43.991	
Subtotal Product Development Remarks: (U) Support JTEO Pre-EMD	PR Form 277		143.008 6.618 5.579	0.000		48.599		89.081		30.183		0.000	310.871 6.618 5.579	0.000
Program Support Subtotal Support Remarks: (U) Test & Evaluation	Various		8.235 20.432	0.000		0.668 0.668	Jan-05	0.860 0.860	Jan-06	0.479 0.479	Jan-07	0.000	10.242 22.439	0.000
Subtotal Test & Evaluation Remarks: (U) Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000 0.000 0.000	0.000
Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			163.440	0.000		49.267		89.941		30.662		0.000	333.310	0.000
Project 4811			R-1 Sł	nopping Lis	t - Item No	o. 52-6 of 5	2-12					Exhibi	t R-3 (PE 06	03854F)

#### DATE **Exhibit R-4, RDT&E Schedule Profile** February 2005 PROJECT NUMBER AND TITLE BUDGET ACTIVITY PE NUMBER AND TITLE 04 Advanced Component Development and Prototypes (ACD&P) 0603854F Wideband MILSATCOM 4811 Wideband Gapfiller (Space) FY04 **FY05** FY06 FY07 FY08 **FY09** FY10 **FY11** 10.0 **Key Events** FOC (5 sats) FY12 On-orbit test Initial Satellite Production Launch Production F1 Integration / test On-orbit operations On-orbit test Launch F2 Production Integration / test On-orbit operations On-orbit test Launch F3 Production Integration /test On-orbit operations **UAV Enhancement** Design Parts Obsolescence Redesign On-orbit test Studies Design Launch F4 Production Integration / test On-orbit operations Advance Not Negotiated\* Procurement On-orbit test Launch \*Anticipate being on contract beginning F5 Production Integration / test Advance Procurement FOC: Full Operational Capability IOC: Initial Operational Capability UAV: Unmanned Aerial Vehide Studies Design / development Integration / test Production / fielding Operations / sustainment ∧ <> Key events Exhibit R-4 (PE 0603854F) Project 4811 R-1 Shopping List - Item No. 52-7 of 52-12

e Detail		DATE <b>Feb</b>	ruary 2005
PE NUMBER AND TITLE 0603854F Wideband M (Space)	MILSATCOM	PROJECT NUMBER ANI	) TITLE
	FY 2005 2Q	FY 2006 1Q 1Q 4Q	FY 2007  1Q 4Q
	PE NUMBER AND TITLE 0603854F Wideband M (Space)	PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)  FY 2004 FY 2005 2Q	PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)  FY 2004  FY 2005 2Q  1Q 1Q 4Q 4Q

	Exhibit R-2a, RDT&E Project Justification										2005	
BUDGET ACTIVITY  04 Advanced Component Development and Prototypes			types (ACD	&P)	P) 0603854F Wideband MILSATCOM 4870 Cor					T NUMBER AND TITLE  ommand & Control System  lidated (CCSC)		
	Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total	
4870	Command & Control System Consolidated (CCSC)	35.621	20.119	3.917	7.010	5.742	6.392	6.485	6.555	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

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

The Military Satellite Communications (MILSATCOM) Command and Control System -Consolidated (CCS-C) system is being acquired to provide integrated launch and on-orbit command and control (C2) functionality, and backup operations at Vandenberg AFB, for MILSATCOM satellites as the current capability provided by the Air Force Satellite Control Network (PE 0305110F) phases out according to plan. CCS-C will use modified commercial off the shelf hardware/software to control all emerging and legacy MILSATCOM systems including Milstar, Defense Satellite Communications System (DSCS), Wideband Gapfiller System (WGS), and Advanced Extremely High Frequency (AEHF), at reduced operating and maintenance costs.

Funding is in Budget Activity 4, ACD&P to support software development and activation of the CCS-C installation and test facility.

**Estimate** 

<ul> <li>(U) Completed development of command and control functionality for WGS, Milstar, and AEHF satellites.         Completed command and control functionality for DSCS.</li> <li>(U) Continue development of command and control functionality for WGS and AEHF satellites. Complete command and control functionality Milstar.</li> <li>(U) Continue Program Office and other related support activities</li> <li>31.181</li> <li>4.465</li> <li>5.454</li> <li>1.161</li> </ul>	
(U) Continue development of command and control functionality for WGS and AEHF satellites. Complete command and control functionality Milstar.	
command and control functionality Milstar.	
	4.648
(II) Continue Program Office and other related support activities 4440 5454 1.161	
(c) Continue 110gram office and other related support activities	2.362
(U) Total Cost 35.621 20.119 3.917	7.010
(U) C. Other Program Funding Summary (\$ in Millions)	
FY 2004 FY 2005 FY 2006 FY 2007 FY 2008 FY 2009 FY 2010 FY 2011 Cost to Total	d Cost

# (U) Other APPN OPAE PE 030600E CCS C

Actual

**Estimate** 

(U) OPAF, PE 030600F, CCS-C BA-11 Line-66 8.203 1.664 0.290 0.000 0.000 0.000 0.000 0.000 0.000 15.477

**Estimate** 

**Estimate** 

Estimate

**Estimate** 

**Estimate** 

Complete

# (U) D. Acquisition Strategy

Competitive contracts with cost plus award fee options, were awarded in Feb 01 to two teams to demonstrate capabilities - the concept demonstration phase. A downselect to a single team was awarded in Mar 02 to develop the system for the development phase.

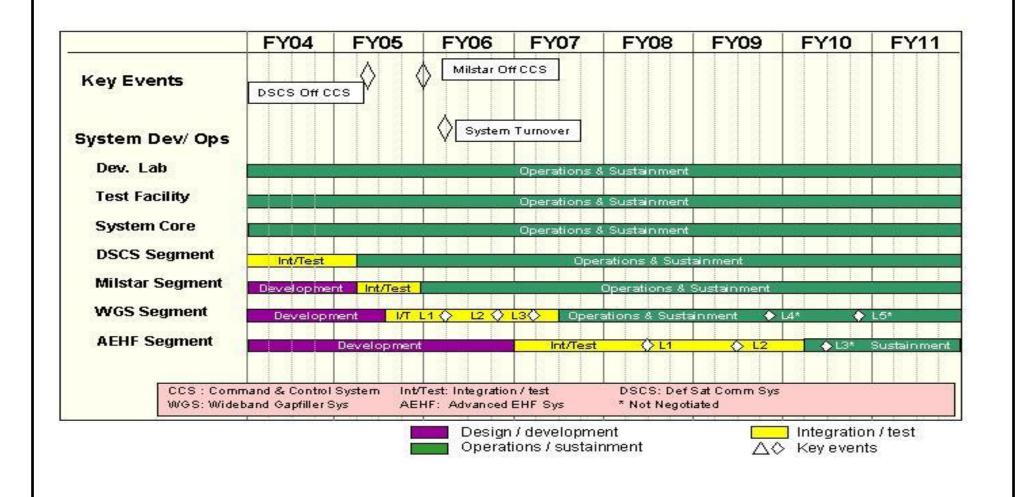
Project 4870 R-1 Shopping List - Item No. 52-9 of 52-12 Exhibit R-2a (PE 0603854F)

				UNC	LASSIF	IED								
	Exhib	it R-3, RD	T&E Proj	ect Co	st Ana	lysis					DATE		ıary 200	)5
BUDGET ACTIVITY  04 Advanced Component Develop	ment and	Prototypes	(ACD&P)		060	IUMBER A <b>3854F W</b> ace)		MILSA	ТСОМ	4870	Comm	BER AND T and & Co d (CCSC	ontrol Sys	stem
U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	<u>Total</u> <u>Prior to FY</u> <u>2004</u> <u>Cost</u>	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Targe Value o Contra
U) Product Development Demonstration Contractors Development Contractor: Integral Systems,	FFP CPAF	Lanham, MD	6.800 26.765	31.181	Oct-03	14.665	Oct-04	2.756	Oct-05	4.648	Oct-06	0.000 Continuing	6.800 TBD	
Inc. Subtotal Product Development Remarks: U) Support			33.565	31.181		14.665		2.756		4.648		Continuing	TBD	0.00
CCSC Program Support Cost Subtotal Support Remarks:			9.165 9.165	4.440 4.440	Oct-03	5.454 5.454	Oct-04	1.161 1.161	Oct-05	2.362 2.362	Oct-06	Continuing Continuing	TBD TBD	0.00
J) Test & Evaluation None Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000 0.000	0.00
J) Management None Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000		0.000	0.000 0.000	0.00
J) Total Cost			42.730	35.621		20.119		3.917		7.010		Continuing	TBD	0.00

R-1 Shopping List - Item No. 52-10 of 52-12

Project 4870

# Exhibit R-4, RDT&E Schedule Profile BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P) PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space) PROJECT NUMBER AND TITLE 4870 Command & Control System Consolidated (CCSC)



Project 4870

Exhibit R-4 (PE 0603854F)

UNCLA	SSIFIED		÷			
Exhibit R-4a, RDT&E Schedule	Detail		DATE <b>Februa</b>	ary 2005		
BUDGET ACTIVITY  04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603854F Wideband N (Space)	MILSATCOM	PROJECT NUMBER AND TITLE 4870 Command & Control Syste Consolidated (CCSC)			
<ul> <li>(U) Schedule Profile</li> <li>(U) Complete Defense Satellite Communications System (DSCS) command and control functionality</li> <li>(U) Begin Wideband Gapfiller System (WGS) Integration &amp; Test</li> </ul>	FY 2004	<u>FY 2005</u> 2Q 3Q	FY 2006	FY 2007		
(U) Complete Milstar command and control functionality (U) Transition MILSATCOM legacy systems (DSCS and Milstar) to CCS-C (U) Continue WGS Integration & Test		4Q 4Q	1-4Q			
(U) Begin AEHF Integration & Test (U) Complete WGS command and control functionality			~	1Q 2Q		
Project 4870 R-1 Shopping List - It	tem No. 52-12 of 52-12		Exhibit R	-4a (PE 0603854F)		