

## UNCLASSIFIED

PE NUMBER: 0603854F

PE TITLE: Wideband MILSATCOM (Space)

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2005

## BUDGET ACTIVITY

## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

## 0603854F Wideband MILSATCOM (Space)

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
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

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	36.271	73.499	15.950	9.290
(U) Current PBR/President's Budget	35.621	69.386	93.858	37.672
(U) Total Adjustments	-0.650	-4.113		
(U) Congressional Program Reductions		-1.038		
Congressional Rescissions				
Congressional Increases				
Reprogrammings		-3.075		
SBIR/STTR Transfer	-0.650			

(U) Significant Program Changes:  
FY06/07: Funds the cost growth and parts obsolescence redesign (Non Recurring Engineering) effort due to the three year production gap between WGS satellite 3 and satellites 4 /5.

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## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
04 Advanced Component Development and Prototypes (ACD&P)					0603854F Wideband MILSATCOM (Space)			4811 Wideband Gapfiller		
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
4811 Wideband Gapfiller	0.000	49.267	89.941	30.662	0.000	0.000	0.000	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.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Support Unmanned Aerial Vehicle (UAV) Bypass (Airborne Intelligence, Surveillance and Reconnaissance support) non-recurring engineering for satellites 4 and 5		14.000	0.350	0.150
(U) Perform payload/production studies related to parts obsolescence and non-recurring engineering for satellites 4 and 5 and support development of WGS control system		34.599	6.950	2.442
(U) Provide Program Office Support		0.668	0.860	0.479
(U) Perform parts obsolescence redesign for satellites 4 and 5			81.781	27.591
(U) Total Cost	0.000	49.267	89.941	30.662

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

	<u>FY 2004</u>	<u>FY 2005</u>	<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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) MPAF, PE 0303600F, WGS, P-19,20	21.848	40.155	72.517	325.680	245.308	48.857	22.548	14.794	Continuing	TBD
(U) OPAF, PE 0303600F, WGS PIPs	11.622	0.000	0.000	0.000	21.515	7.169			0.000	55.448

Project 4811

R-1 Shopping List - Item No. 52-4 of 52-12

Exhibit R-2a (PE 0603854F)

## Exhibit R-2a, RDT&amp;E Project Justification

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## BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

## PROJECT NUMBER AND TITLE

4811 Wideband Gapfiller

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

(U) OPAF, PE 0303600F, CCS-C	8.203	1.664	0.290	0.000	0.000	15.477
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(U) D. Acquisition Strategy

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.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)					PROJECT NUMBER AND TITLE 4811 Wideband Gapfiller				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	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
(U) Product Development														
Parts Obsolescence Redesign	FFP							81.781	Dec-05	27.591	Dec-06		109.372	
WGS Satellite EMD	FFP		143.008										143.008	
UAV Bypass NRE	FFP					14.000	Jan-05	0.350	Dec-05	0.150	Dec-06		14.500	
Payload/Production Studies	Various					34.599	Dec-04	6.950	Dec-05	2.442	Dec-06		43.991	
Subtotal Product Development			143.008	0.000		48.599		89.081		30.183		0.000	310.871	0.000
Remarks:														
(U) Support														
JTEO	PR		6.618										6.618	
Pre-EMD	Form 277		5.579										5.579	
Program Support	Various		8.235			0.668	Jan-05	0.860	Jan-06	0.479	Jan-07		10.242	
Subtotal Support			20.432	0.000		0.668		0.860		0.479		0.000	22.439	0.000
Remarks:														
(U) Test & Evaluation														
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Management														
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			163.440	0.000		49.267		89.941		30.662		0.000	333.310	0.000

Project 4811

R-1 Shopping List - Item No. 52-6 of 52-12

Exhibit R-3 (PE 0603854F)

## Exhibit R-4, RDT&amp;E Schedule Profile

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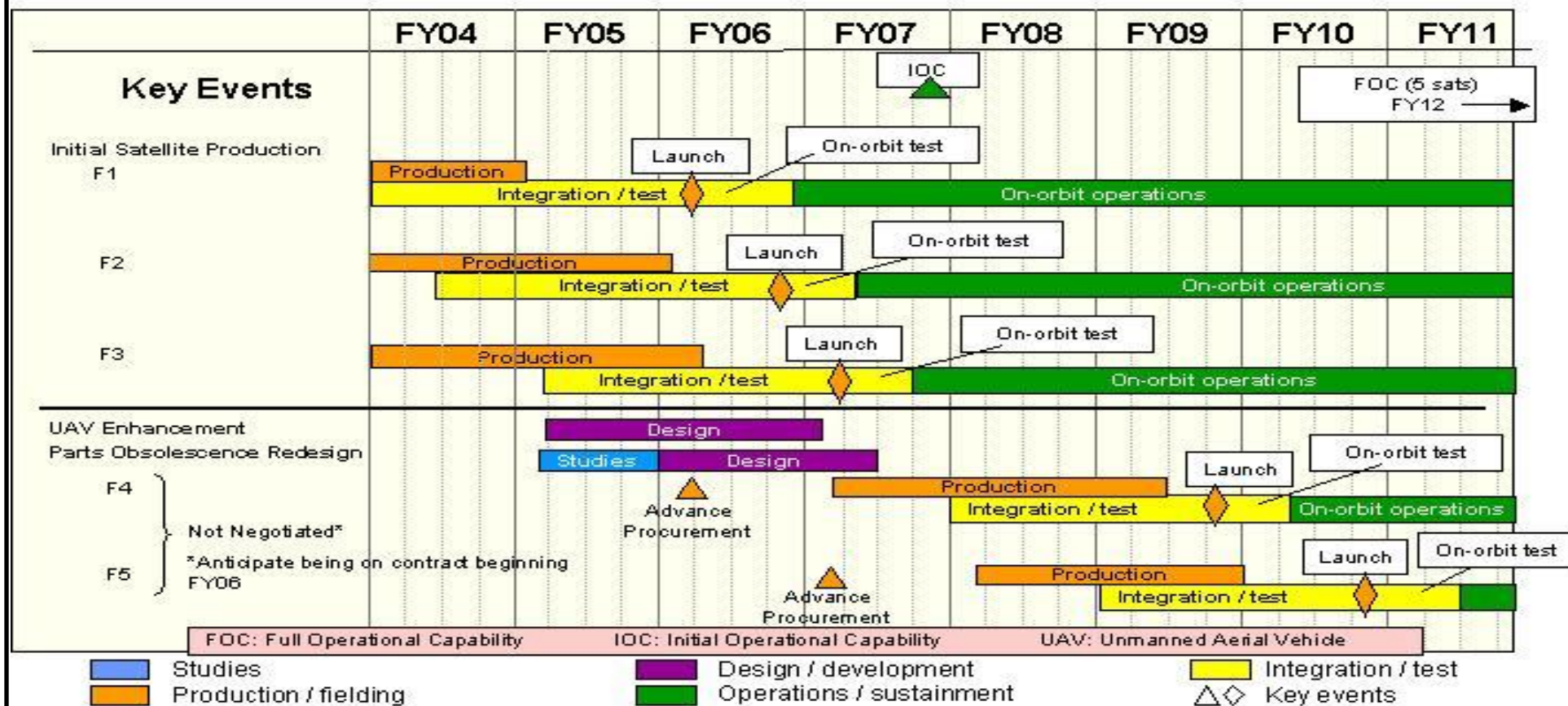
04 Advanced Component Development and Prototypes (ACD&amp;P)

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

PROJECT NUMBER AND TITLE

4811 Wideband Gapfiller



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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)		
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.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Completed development of command and control functionality for WGS, Milstar, and AEHF satellites.	31.181			
Completed command and control functionality for DSCS.				
(U) Continue development of command and control functionality for WGS and AEHF satellites. Complete command and control functionality Milstar.		14.665	2.756	4.648
(U) Continue Program Office and other related support activities	4.440	5.454	1.161	2.362
(U) Total Cost	35.621	20.119	3.917	7.010

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

	<u>FY 2004</u> <u>Actual</u>	<u>FY 2005</u> <u>Estimate</u>	<u>FY 2006</u> <u>Estimate</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>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN										
(U) OPAF, PE 030600F, CCS-C	8.203	1.664	0.290	0.000	0.000	0.000	0.000	0.000	0.000	15.477
(U) BA-11 Line-66										

(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.



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## Exhibit R-3, RDT&amp;E Project Cost Analysis

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## 04 Advanced Component Development and Prototypes (ACD&amp;P)

## PE NUMBER AND TITLE

0603854F Wideband MILSATCOM  
(Space)

## PROJECT NUMBER AND TITLE

4870 Command & Control System  
Consolidated (CCSC)

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>														
Demonstration Contractors	FFP		6.800									0.000	6.800	
Development Contractor: Integral Systems, Inc.	CPAF	Lanham, MD	26.765	31.181	Oct-03	14.665	Oct-04	2.756	Oct-05	4.648	Oct-06	Continuing	TBD	
Subtotal Product Development			33.565	31.181		14.665		2.756		4.648		Continuing	TBD	0.000
Remarks:														
(U) <u>Support</u>														
CCSC Program Support Cost			9.165	4.440	Oct-03	5.454	Oct-04	1.161	Oct-05	2.362	Oct-06	Continuing	TBD	
Subtotal Support			9.165	4.440		5.454		1.161		2.362		Continuing	TBD	0.000
Remarks:														
(U) <u>Test &amp; Evaluation</u>														
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>														
None													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			42.730	35.621		20.119		3.917		7.010		Continuing	TBD	0.000

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#### 04 Advanced Component Development and Prototypes (ACD&P)

0603854F Wideband MILSATCOM  
(Space)

## 4870 Command & Control System Consolidated (CCSC)



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