

**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)**

DATE

**February 2003**

BUDGET ACTIVITY

**04 - Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE

**0603854F Wideband MILSATCOM (Space)**

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	96,398	13,801	36,686	73,691	15,994	9,309	5,704	6,347	0	351,062
4811 Wideband Gapfiller	79,855	1,965	0	53,341	7,702	2,296	0	0	0	228,744
4870 Command & Control System Consolidated (CCSC)	16,543	11,836	36,686	20,350	8,292	7,013	5,704	6,347	0	122,318
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

**(U) A. Mission Description**

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), and the MILSATCOM Capstone Requirements Document (CRD) approved by the JROC in Oct 97.

The Wideband Gapfiller Satellites (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 NLT Oct 04, and satellites 2 and 3 are scheduled for NLT Oct 05. Program Decision Memorandum I directed the addition of two additional WGS's that will complement the transformational communications architecture. Renegotiation will be required as procurement of satellites 4-5 in FY07 and FY08 is not covered by the options negotiated in the current WGS contract. The first option will be exercised IAW the advance procurement plan for WGS #4 in FY06.

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) 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, DSCS, WGS, AEHF, Advanced Polar, satellites at reduced operating and maintenance costs.

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

(U) Funding is in Budget Activity 4, Advanced Component Development and Prototypes to support:  
 WGS: making maximum use of commercial technology and practices by modifying commercial satellites to better support unique military requirements  
 CCS-C: development phase

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget	99,033	20,009	43,017	551,222
(U) Appropriated Value	100,670	14,009		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-2,106	-148		
b. Small Business Innovative Research	-3,000			
c. Omnibus or Other Above Threshold Reprogram		-60		
d. Below Threshold Reprogram	834			
e. Rescissions				
(U) Adjustments to Budget Years Since FY 2003 PBR		0	-6,331	
(U) Current Budget Submit/FY 2004 PBR	96,398	13,801	36,686	351,062

(U) **Significant Program Changes:**

(U) FY04: Joint Terminal Engineering Office (JTEO) support effort was transferred from Project 644811 to PE 0303601F, MILSATCOM Terminals. Project 644870 changes reflect the costs of the contract definitized in FY02 and planned contract modifications for future system.

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

**PE NUMBER AND TITLE**  
**0603854F Wideband MILSATCOM (Space)**  
**PROJECT**  
**4811**

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
4811	Wideband Gapfiller	79,855	1,965	0	53,341	7,702	2,296	0	0	0	228,744

**(U) A. Mission Description**

The Wideband Gapfiller Satellites (WGS) will provide the DoD with high data rate military satellite communication (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 JROC approved WGS Operational Requirements Document (May 00). This program was conceived to augment the near term 'bandwidth gap' in Warfighter communication needs. The first WGS launch is scheduled for NLT Oct 04, and satellites 2 and 3 are scheduled for NLT Oct 05. These dual frequency Wideband Gapfiller 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.

Funding was added in FY2005 and beyond for non-recurring engineering on satellites 4 and 5 to support increased bandwidth requirements for the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for FY09-10.

Funding in Budget Activity 4, Demonstration and Validation to support:

Funds used for non-recurring engineering that maximizes commercial technology and practices to modify commercial satellites to better support military unique requirements.

**(U) FY 2002 (\$ in Thousands)**

- (U) \$0** Accomplishments/Planned Program
- (U) \$74,087** Completed EMD, including the Non-recurring engineering for all three satellites. Completed Critical Design Review.
- (U) \$3,605** Continued JTEO Support
- (U) \$2,163** Continued Program Support
- (U) \$79,855** Total

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**RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)**

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

**PE NUMBER AND TITLE**  
**0603854F Wideband MILSATCOM (Space)**

**PROJECT**  
**4811**

(U) **A. Mission Description Continued**

(U) **FY 2003 (\$ in Thousands)**

(U) \$0 Accomplishments/Planned Program  
(U) \$1,965 Continue JTEO Support  
(U) \$1,965 Total

(U) **FY 2004 (\$ in Thousands)**

(U) \$0 Accomplishments/Planned Program  
(U) \$0 No activity  
(U) \$0 Total

(U) **B. Project Change Summary**

Beginning in FY04, the Joint Terminal Engineering Office support effort was transferred from Project 644811 to PE 0303601F, MILSATCOM Terminals. Funding was added in FY2005 and beyond for non-recurring engineering on satellites 4 and 5 to support increased bandwidth requirements for the Airborne Intelligence, Surveillance and Reconnaissance mission.

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

	<u>FY 2002</u>	<u>FY 2003</u>	<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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) MPAF, PE 0303600F, WGS, Line P-16, Line P-17	361,272	188,232	34,588	21,505	60,420	267,688	170,456	43,694	64,800	1,212,655
(U) OPAF, PE 0603854F, WGS PIPs	0	15,933	11,864	0	0	0			0	27,797
(U) OPAF, PE 0303600F, CCS-C	0	5,543	8,109	2,135	289	0			0	16,076

(U) **D. Acquisition Strategy**

The WGS program will make maximum use of commercial practices and technology in its FAR Part 12, FFP acquisition. The WGS received MS II/III approval on 6 Nov 00 and awarded a FFP contract on 2 Jan 01. All five satellites will be purchased with Procurement funds, and the Non-Recurring Engineering (NRE) is funded with RDT&E.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003					
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT				
<b>04 - Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603854F Wideband MILSATCOM (Space)</b>				<b>4811</b>				
<b>(U) E. Schedule Profile</b>												
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	EMD/Production Contract Award											
(U)	EMD Completion											
(U)	Satellite Production Options											
(U)	Satellite 1 Launch (Oct 04)											
x = planned event; * = completed event												

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**RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)**

DATE  
**February 2003**

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

**PE NUMBER AND TITLE**  
**0603854F Wideband MILSATCOM (Space)**  
**PROJECT**  
**4811**

(U) **A. Project Cost Breakdown (\$ in Thousands)**

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>
(U) EMD	74,087	0	0
(U) JTEO Support	3,605	1,965	0
(U) Program Support	2,163	0	0
(U) Total	79,855	1,965	0

(U) **B. Budget Acquisition History and Planning Information (\$ in Thousands)**

(U) **Performing Organizations:**

<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
WGS Satellite EMD	FFP	Jan 01	203,008	203,008	68,477	74,531	0	0	59,300	202,308
<u>Support and Management Organizations</u>										
JTEO	PR	Continuing	8,583	8,583	3,457	3,161	1,965	0	0	8,583
Pre-EMD	Form 277	Dec 99	5,579	5,579	5,579	0	0	0	0	5,579
International Studies	SS/CFFF/AF	Various				0	0	0	0	0
Program Support	Various	Various	12,274	12,274	6,072	2,163	0	0	4,039	12,274
<u>Test and Evaluation Organizations</u>										
AFOTEC, DT&E	TBD	TBD	TBD	TBD						

(U) **Government Furnished Property:**

<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>	<u>Total Prior to FY 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>									
TBD									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 2003				
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT				
<b>04 - Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>0603854F Wideband MILSATCOM (Space)</b>	<b>4811</b>				
<b>(U) <u>Government Furnished Property Continued:</u></b>						
<u>Support and Management Property</u>						
TBD						
<u>Test and Evaluation Property</u>						
TBD						
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	68,477	74,531	0	0	59,300	202,308
Subtotal Support and Management	15,108	5,324	1,965	0	4,039	26,436
Subtotal Test and Evaluation						
Total Project	83,585	79,855	1,965	0	63,339	228,744

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<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>									DATE <b>February 2003</b>			
BUDGET ACTIVITY <b>04 - Advanced Component Development and Prototypes (ACD&amp;P)</b>					PE NUMBER AND TITLE <b>0603854F Wideband MILSATCOM (Space)</b>					PROJECT <b>4870</b>		
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
4870	Command & Control System Consolidated (CCSC)		16,543	11,836	36,686	20,350	8,292	7,013	5,704	6,347	0	122,318
<p>(U) <b><u>A. Mission Description</u></b>          The MILSATCOM Command and Control System-Consolidated (CCS-C) system is being acquired to provide integrated launch and on-orbit command and control (C2) functionality 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, DSCS, WGS, AEHF, and DoD satellites identified in the Transformational Communications Architecture (TCA), at reduced operating and maintenance costs.</p> <p>Funding is in Budget Activity 4, Demonstration and Validation to support software development and activation of the CCS-C installation and test facility.</p> <p>(U) <b><u>FY 2002 (\$ in Thousands)</u></b>          (U) \$0 Accomplishments/Planned Program          (U) \$588 Completed Concept Demonstration Phase          (U) \$12,876 Began development of command and control functionality (i.e., software development). CCS-C installation and test facility activated in Colorado Springs, CO.          (U) \$3,079 Continued Program Support          (U) \$16,543 Total</p> <p>(U) <b><u>FY 2003 (\$ in Thousands)</u></b>          (U) \$0 Accomplishments/Planned Program          (U) \$8,920 Continue development of command and control functionality for Defense Satellite Communications System, MILSTAR, Wideband Gapfiller satellites, and Advanced EHF satellites          (U) \$2,916 Continue Program Support          (U) \$11,836 Total</p>												
Project 4870			Page 8 of 11 Pages					Exhibit R-2A (PE 0603854F)				

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<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>							DATE <b>February 2003</b>				
BUDGET ACTIVITY <b>04 - Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603854F Wideband MILSATCOM (Space)</b>				PROJECT <b>4870</b>			
<b>(U) <u>A. Mission Description Continued</u></b>											
<b>(U) <u>FY 2004 (\$ in Thousands)</u></b>											
<b>(U) \$0 Accomplishments/Planned Program</b>											
<b>(U) \$32,954 Continue development of command and control functionality for Wideband Gapfiller Satellites and Advanced EHF satellites. Complete Command and control functionality for Defense Satellite Communications System, MILSTAR</b>											
<b>(U) \$3,732 Continue Program Office and other related support activities</b>											
<b>(U) \$36,686 Total</b>											
<b>(U) <u>B. Project Change Summary</u></b>											
<b>(U) None.</b>											
<b>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></b>											
	<u>FY 2002</u>	<u>FY 2003</u>	<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>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>		
<b>(U) AF RDT&amp;E</b>											
<b>(U) Other APPN</b>											
<b>(U) OPAF, PE 030600F, CCS-C BA-11 Line-67</b>	0	5,543	8,109	2,135	289	0			0	16,458	
<b>(U) <u>D. Acquisition Strategy</u></b>											
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.											
<b>(U) <u>E. Schedule Profile</u></b>											
				<u>FY 2002</u>			<u>FY 2003</u>		<u>FY 2004</u>		
				1	2	3	4	1	2	3	4
<b>(U) Concept Demonstration Contract Award</b>											
<b>(U) Completion of Concept Demonstration</b>					*						
<b>(U) Development Contract Downselect</b>					*						
<b>(U) Critical Design Review</b>							*				
<b>(U) Transition MILSATCOM legacy systems to CCS-C</b>											X
<b>Project 4870</b>				Page 9 of 11 Pages				Exhibit R-2A (PE 0603854F)			

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)</b>							DATE <b>February 2003</b>					
BUDGET ACTIVITY <b>04 - Advanced Component Development and Prototypes (ACD&amp;P)</b>				PE NUMBER AND TITLE <b>0603854F Wideband MILSATCOM (Space)</b>				PROJECT <b>4870</b>				
<b>(U) E. Schedule Profile Continued</b>												
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
* = Completed Event												
X = Planned Event												
Project 4870				Page 10 of 11 Pages				Exhibit R-2A (PE 0603854F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
<b>04 - Advanced Component Development and Prototypes (ACD&amp;P)</b>					<b>0603854F Wideband MILSATCOM (Space)</b>			<b>4870</b>		
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>										
						<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>		
(U)	Concept Demonstration Phase					588	0			
(U)	Development Phase					12,876	8,920			32,954
(U)	Program Support					3,079	2,916			3,732
(U)	Total					16,543	11,836			36,686
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>										
<b>(U) Performing Organizations:</b>										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Demonstration Contractors	FFP	Feb 01	6,835	6,835	6,247	588	0	0	0	6,835
Development Contractor	CPAF	Mar 02	91,107	91,107	0	12,876	8,920	32,954	36,357	91,107
<u>Support and Management Organizations</u>										
Various		Various	16,238	16,238	3,300	3,079	2,916	3,732	11,349	24,376
<u>Test and Evaluation Organizations</u>										
<u>Subtotals</u>					<u>Total Prior to FY 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Subtotal Product Development					6,247	13,464	8,920	32,954	36,357	97,942
Subtotal Support and Management					3,300	3,079	2,916	3,732	11,349	24,376
Subtotal Test and Evaluation										
Total Project					9,547	16,543	11,836	36,686	47,706	122,318