PE NUMBER: 0603430F

PE TITLE: Advanced (EHF MILSATCOM (Space)

	=: / (a : a : a : a : a : a : a : a : a : a										
Exhibit R-2, RDT&E Budget Item Justification											2005
	T ACTIVITY vanced Component Developmei	pace)									
	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	775.841	606.659	665.257	631.991	430.040	233.839	93.775	82.188	Continuing	TBD
4050	Advanced MILSATCOM	775.841	606.659	665.257	631.991	430.040	233.839	93,775	82.188	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

Develop and acquire Advanced Extremely High Frequency (AEHF) Military Satellite Communications (MILSATCOM) satellites, mission control segment and cryptography for survivable, anti-jam, worldwide, secure communications for the strategic and tactical warfighter. AEHF satellites will replenish the existing EHF system (Milstar) at much higher capacity and data rate capabilities. On 10 October 2001, a Milestone B decision was approved by the Defense Acquisition Executive to enter the System Development and Demonstration (SDD) phase. The SDD letter contract was awarded in Nov 01 and was definitized in Aug 02. The program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime/integrator) and Northrop-Grumman (provider of satellite payload). The follow-on buy for Satellite Vehicle 3 was approved in Jun 04. Satellites 1 and 2 are funded with RDT&E funds and satellite 3 is funded with procurement funds. An Interim Program Review was held 22 Oct 04 to decide if a fourth AEHF satellite would be added to the program in the FY06 President's Budget to meet Full Operational Capability (FOC). At this time, the Milestone Decision Authority (MDA) decided to maintain the AEHF and Transformational Satellite Communications System (TSAT) baselines, achieving AEHF FOC-equivalency with the first TSAT. AEHF is a cooperative program that includes International Partners (Canada, the United Kingdom, and The Netherlands) and is part of the DoD bid to provide NATO with a protected SATCOM capability.

This program is in Budget Activity 4, Advanced Component Development and Prototypes, since it funds Advanced EHF technology validation and modeling.

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

	<u>FY 2004</u>	FY 2005	FY 2006	FY 2007
(U) Previous President's Budget	802.341	612.049	409.972	316.777
(U) Current PBR/President's Budget	775.841	606.659	665.257	631.991
(U) Total Adjustments	-26.500	-5.390		
(U) Congressional Program Reductions		-5.390		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	1.500			

SBIR/STTR Transfer (U) Significant Program Changes:

FY06/07: Development of new, complex information assurance (IA) products, concurrently with other AEHF subsystems, has been a technically challenging high-risk area for the program. In spite of risk reduction actions, delayed delivery of National Security Agency (NSA) IA products is preventing the government from delivering them to the AEHF prime contractor, Lockheed Martin, on-schedule. Late receipt of this Government Furnished Equipment will prevent on-time completion of AEHF system integration and test, and has resulted in a one-year launch delay to each of the three satellites, from Apr 07-09 to Apr 08-10. Additionally, the AEHF program incurred cost growth in the replacement of existing critical electronic components and unplanned payload component testing.

-28.000

R-1 Shopping List - Item No. 42-1 of 42-6

Exhibit R-2 (PE 0603430F)

	Exhibit R-2a, RDT&E Project Justification DATE February 2005														
BUDGET ACTIV 04 Advance	/ITY d Component Developmer	060343	BER AND TITLE OF Advance TCOM (Spac	d (EHF		CT NUMBER AND TITLE Advanced MILSATCOM									
	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				
4050 Adva	nced MILSATCOM	775.841	606.659	665.257	631.991	430.040	233.839	93.77	5 82.188	Continuing	TBD				
Quan	tity of RDT&E Articles	0	0	0	0	0	0		0 0						

(U) A. Mission Description and Budget Item Justification

Develop and acquire Advanced Extremely High Frequency (AEHF) Military Satellite Communications (MILSATCOM) satellites, mission control segment and cryptography for survivable, anti-jam, worldwide, secure communications for the strategic and tactical warfighter. AEHF satellites will replenish the existing EHF system (Milstar) at much higher capacity and data rate capabilities. On 10 October 2001, a Milestone B decision was approved by the Defense Acquisition Executive to enter the System Development and Demonstration (SDD) phase. The SDD letter contract was awarded in Nov 01 and was definitized in Aug 02. The program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime/integrator) and Northrop-Grumman (provider of satellite payload). The follow-on buy for Satellite Vehicle 3 was approved in Jun 04. Satellites 1 and 2 are funded with RDT&E funds and satellite 3 is funded with procurement funds. An Interim Program Review was held 22 Oct 04 to decide if a fourth AEHF satellite would be added to the program in the FY06 President's Budget to meet Full Operational Capability (FOC). At this time, the Milestone Decision Authority (MDA) decided to maintain the AEHF and Transformational Satellite Communications System (TSAT) baselines, achieving AEHF FOC-equivalency with the first TSAT. AEHF is a cooperative program that includes International Partners (Canada, the United Kingdom, and The Netherlands) and is part of the DoD bid to provide NATO with a protected SATCOM capability.

This program is in Budget Activity 4, Advanced Component Development and Prototypes, since it funds Advanced EHF technology validation and modeling.

(U)	B. Accomplishments/Planned	d Program (\$ in	Millions)				FY 20	<u>)04 </u>	FY 2005	FY 2006	FY 2007
(U)	Continue SDD of the AEHF sa	atellites and MCS	685.4	141 :	515.359	604.590	574.387				
	intermediate software incremen	nts for bus, paylo	oad and MCS								
(U)	Continue satellite cryptographi	ic development		36.200 36.300		36.300	9.400	6.900			
(U)	Continue qualification and pro	ductization of ra	diation-harden	ed components	s for USAF/DO	DD space	19.0	000	21.000	20.000	21.000
	programs										
(U)	Continue Program Office and a	related support a	ctivities				35.2	200	34.000	31.267	29.704
(U)	Total Cost						775.8	341	606.659	665.257	631.991
(U)	C. Other Program Funding S	Summary (\$ in N	Millions)								
		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to	Total Cost
		<u>Actual</u>	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	Total Cost
(U)	Related Proc:										
(U)	MPAF, PE 0303604F,		78.293	528.978	0.000	12.057	15.508	16.441	17.427	0.000	668.704
(0)	Advanced EHF, P-17/18		70.273	320.770	0.000	12.057	13.300	10.111	17.127	0.000	000.701
(U)	RDT&E, PE 0603854F,	35.621	20.119	3.917	7.010	5.742	6.392	6.485	6.555	Continuing	TBD
	Wideband MILSATCOM	20.021	_3,11,7	3,727	,,,,,	517.12	3.672	000	0.000	2 2222	-22
Pro	piect 4050			R-1 Shopp	oina List - Item No	o. 42-2 of 42-6				Exhibit R-2a (P	E 0603430F)

	DATE	February 2005								
BUDGET ACTIVITY 04 Advanced Component D	0603	UMBER AND TIT 3430F Advand SATCOM (Sp	ced (EHF		CT NUMBER AND TITLE Advanced MILSATCOM					
(U) <u>C. Other Program Funding</u> (Space), Project #644870, CCS-C, R-52	ng Summary (\$ in N	<u>(fillions</u>)								
OPAF, PE 03033600F (U) Wideband Gapfiller Systen Project #836780, CCS-C	n, 8.203	1.664	0.290	0.000	0.000	0.000			0.000	15.477
RDT&E, PE 0303601F, (U) MILSATCOM Terminals, BA-7, R-175	159.647	264.795	273.974	273.782	191.087	220.734	198.158	194.439	Continuing	TBD

(U) D. Acquisition Strategy

The Advanced MILSATCOM, also known as Advanced EHF (AEHF), program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime/integrator) and Northrop-Grumman (provider of the satellite payload). This team will perform the Advanced Component Development and Prototypes (ACD&P) and SDD of three satellites and associated mission command and control ground capabilities under Cost Plus Award Fee line items on the contract. AEHF will incorporate lessons learned and improvements from Milstar and commercial SATCOM practices into the next generation EHF secure, anti-jam military communications satellite system.

Project 4050 R-1 Shopping List - Item No. 42-3 of 42-6 Exhibit R-2a (PE 0603430F)

	Exhib	it R-3, RD	T&E Proj	ect Co	st Ana	lysis					DAT		uary 200	05
										ROJECT NUMBER AND TITLE 050 Advanced MILSATCOM				
(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	Complete		Target Value of Contract
NSA	MIPR	Camden, NJ	104.582	36.200	Oct-03	36.300	Oct-04	9.400	Nov-05	6.900	Nov-06	0.000	193.382	
JTEO	PR	San Diego, CA	15.491									0.000	15.491	
MIT/LL	MIPR	Hanscom AFB, MA	4.988									0.000	4.988	
Hughes	CPFF	El Segundo, CA	67.175									0.000	67.175	
TRW	CPFF	Redondo Beach, CA	62.083									0.000	62.083	
Various	Various	Beach, CA	66.659									0.000	66.659	
Lockheed Martin (Pre-EMD)	FFP	Sunnyvale, CA	225.011									0.000		
Hughes	FFP	El Segundo, CA										0.000	0.000	
SDD Contractor (Lockheed Martin) Radiation Hardened parts developers None	CPAF Various	CA	1,103.484 19.000	685.441 19.000	Oct-03	515.359 21.000	Oct-04	604.590 20.000	Nov-05	574.387 21.000	Nov-06	Continuing 84.205		
Subtotal Product Development Remarks:			1,668.473	740.641		572.659		633.990		602.287		Continuing	TBD	0.000
(U) Support Various None	Various		88.496	35.200	Oct-03	34.000	Oct-04	31.267	Nov-05	29.704	Nov-06	Continuing	TBD 0.000	
Subtotal Support Remarks: (U) Test & Evaluation			88.496	35.200		34.000		31.267		29.704		Continuing		0.000
AFOTEC Subtotal Test & Evaluation Remarks:			0.000 0.000	0.000		0.000		0.000		0.000		Continuing Continuing		0.000
(U) Management Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000 0.000	0.000
Remarks: (U) Total Cost			1,756.969	775.841		606.659		665.257		631.991		Continuing	TBD	0.000
Project 4050			D 1 C	honning ! :	ict Itom N	0 42 4 05	12.6					Evhih	i+ D 2 /DE 0	803430E)
Project 4050		-	K-13	nopping Li	628	o. 42-4 of	+∠-0					EXIID	it R-3 (PE 0	00343UF)

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) 0603430F Advanced (EHF 4050 Advanced MILSATCOM MILSATCOM (Space) FY04 FY05 FY06 **FY07** FY08 FY09 FY10 **FY11** IPR - Interim Program Review Follow-on buy decision (AEHF #3) (AEHF #4 Decision) Major Program Milestones IFC IOC System CDR Space Segment Models & Dev Brassboards On-orbit test Launch Production Satellite #1 048 1 & T (RDT&E) Launch On-orbit test Satellite #2 (RDT&E) Production On-orbit test Satellite #3 Launch Production (Production) 088 Ground (Control) Development 1 & T 088 Inc 5.1 Seament Inc 6 Inc 3 Inc 2 Inc 4 Inc 5.2 CDR: Critical Design Review IPR: Interim Program Review I&T: Integrate & Test IFC: Initial Fielded Capability IOC: Initial Operational Capability 0&S: Operations & Sustainment Inc 3: Badward Compatibility (BWC) Planning for Space Vehicle (SV) 1 Inc 4: BWC Products SV-1 Inc 5.1: Extreme Data Rate (XDR) Planning Inc 5.2: XDR Products Inc 6: XDR capability for International Partners Integration / test Production / fielding Design / development Operations / sustainment △ ✓ Key events Exhibit R-4 (PE 0603430F) Project 4050 R-1 Shopping List - Item No. 42-5 of 42-6

	ASSIFIED		1		
Exhibit R-4a, RDT&E Schedu	DATE Februa	February 2005			
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space)		PROJECT NUMBER AND TIT 4050 Advanced MILSA		
 (U) Schedule Profile (U) System Critical Design Review (CDR) (U) Follow-On Buy Decision (previously referred to as Milestone C) 	<u>FY 2004</u> 3Q 3Q	FY 2005	FY 2006	FY 2007	
 (U) Interim Program Review (U) Complete Ground Segment Software Increment 3 (Backwards Compatibility w/Milstar II) Planning for Space Vehicle (SV)-1 		1Q	1Q		
(U) Initiate Ground Segment Software Increment 5 (eXtreme Data Rate (XDR)) Planning and Products			3Q		
 (U) Complete Ground Segment Software Increment 4 (Backwards Compatibility w/ Milstar II) Products for SV-1 (U) Program Mangement Review 			1-4Q	4Q 1-4Q	
Project 4050 R-1 Shopping Lis	t - Item No. 42-6 of 42-6		Exhibit R-	4a (PE 0603430F)	