

**UNCLASSIFIED**

PE NUMBER: 0603430F  
 PE TITLE: Advanced (EHF MILSATCOM (Space))

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	<b>PE NUMBER AND TITLE</b> <b>0603430F Advanced (EHF MILSATCOM (Space))</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	617.294	599.353	388.041	109.067	25.948	0.000	0.000	0.000	5,536.830
4050 Advanced MILSATCOM	617.294	599.353	388.041	109.067	25.948	0.000	0.000	0.000	5,536.830

**(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 warfighters. AEHF satellites will replenish the existing EHF system (Milstar) at much higher capacity and data rate (5x increase over Milstar II) capabilities. AEHF is a cooperative program that includes International Partners (Canada, the United Kingdom, and The Netherlands).

In 2004, 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. The recent Department of Defense Quadrennial Defense Review's approach was to buy three AEHF satellites and use the first TSAT satellite to complete an eXtended Data Rate (XDR) constellation. However, in the FY08 Appropriations Act, Congress directed the Department to purchase a fourth satellite and appropriated advance procurement.

The FY09PB funds satellite 1 launch and on-orbit testing; satellite 2 integration and test, launch, and on-orbit testing; technology needs forecasting; and incremental Mission Control Segment (MCS) integration and test/fielding.

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 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	630.868	603.179	363.582
(U) Current PBR/President's Budget	617.294	599.353	388.041
(U) Total Adjustments	-13.574		
(U) Congressional Program Reductions			
Congressional Rescissions		-3.826	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-13.574		

**(U) Significant Program Changes:**

FY09 funds added to address AEHF 1 & 2 launch delays resulting from integration and test problems.

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

DATE

February 2008

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<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>		<b>0603430F Advanced (EHF MILSATCOM (Space))</b>					<b>4050 Advanced MILSATCOM</b>			
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
4050 Advanced MILSATCOM	617.294	599.353	388.041	109.067	25.948	0.000	0.000	0.000	5,536.830	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

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

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue such efforts as SDD of the AEHF satellites and MCS, continue build of Satellite 1 and 2 flight hardware, and intermediate software increments for bus, payload and MCS	529.185	530.972	342.112
(U) Continue satellite cryptographic development	20.688	21.338	5.765
(U) Continue qualification and productization of radiation-hardened components for USAF/DOD space programs	19.530		
(U) Government Furnished Property (such as, but not limited to Launch Prep, Radiation Hardening Testing, Communication Circuit)	3.302	4.429	2.025
(U) Continue Technical Analysis	22.135	21.684	22.551
(U) Continue Program Office and related support activities, such as, but not limited to, Systems Engineering and Integration	22.454	20.930	15.588
(U) Total Cost	617.294	599.353	388.041

**Exhibit R-2a, RDT&E Project Justification**

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BUDGET ACTIVITY <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>	PE NUMBER AND TITLE <b>0603430F Advanced (EHF MILSATCOM (Space))</b>	PROJECT NUMBER AND TITLE <b>4050 Advanced MILSATCOM</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</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>Complete</u>	
(U) Related Proc:									
(U) MPAF, PE 0303604F, Advanced EHF, P-17/18	0.000	124.894	16.564	826.635	22.098	12.277	34.056	Continuing	TBD
(U) RDT&E, PE 0603854F, Wideband MILSATCOM (Space), Project #644870, CCS-C, R-52	15.532	19.091	12.422	13.201	12.096	11.255	6.532	Continuing	TBD
(U) OPAF, PE 0303600F WGS, Project #836780, CCS-C	0.000	0.531	0.000	0.000	0.000	0.000	0.000	0.000	17.667
(U) RDT&E, PE 0303601F, MILSATCOM Terminals, BA-7, R-175	341.487	494.346	443.165	620.402	729.972	783.652	744.781	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.

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**Exhibit R-3, RDT&E Project Cost Analysis**

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**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>				<b>0603430F Advanced (EHF MILSATCOM (Space))</b>					<b>4050 Advanced MILSATCOM</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
NSA	MIPR	Camden, NJ	204.302	20.688	Dec-06	21.338	Dec-07	5.765	Dec-08	0.000	252.093	
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	Various	66.659							0.000	66.659	
Lockheed Martin (Pre-EMD)	FFP	Sunnyvale, CA	225.011							0.000	225.011	
Hughes	FFP	El Segundo, CA								0.000	0.000	
SDD Contractor (Lockheed Martin)	CPAF		2,876.749	529.185	Dec-06	530.972	Dec-07	342.112	Dec-08	Continuing	TBD	
Radiation Hardened parts developers	Various		79.000	19.530							98.530	
Subtotal Product Development			3,601.458	569.403		552.310		347.877		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Various	Various		123.696							Continuing	TBD	
Technical Support			21.590	22.135	Dec-06	21.684	Dec-07	22.551	Dec-08	Continuing	TBD	
GFP			2.848	3.302		4.429		2.025		Continuing	TBD	
Program Office Support			52.549	22.454		20.930		15.588		Continuing	TBD	
Subtotal Support			200.683	47.891		47.043		40.164		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) Total Cost			3,802.141	617.294		599.353		388.041		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

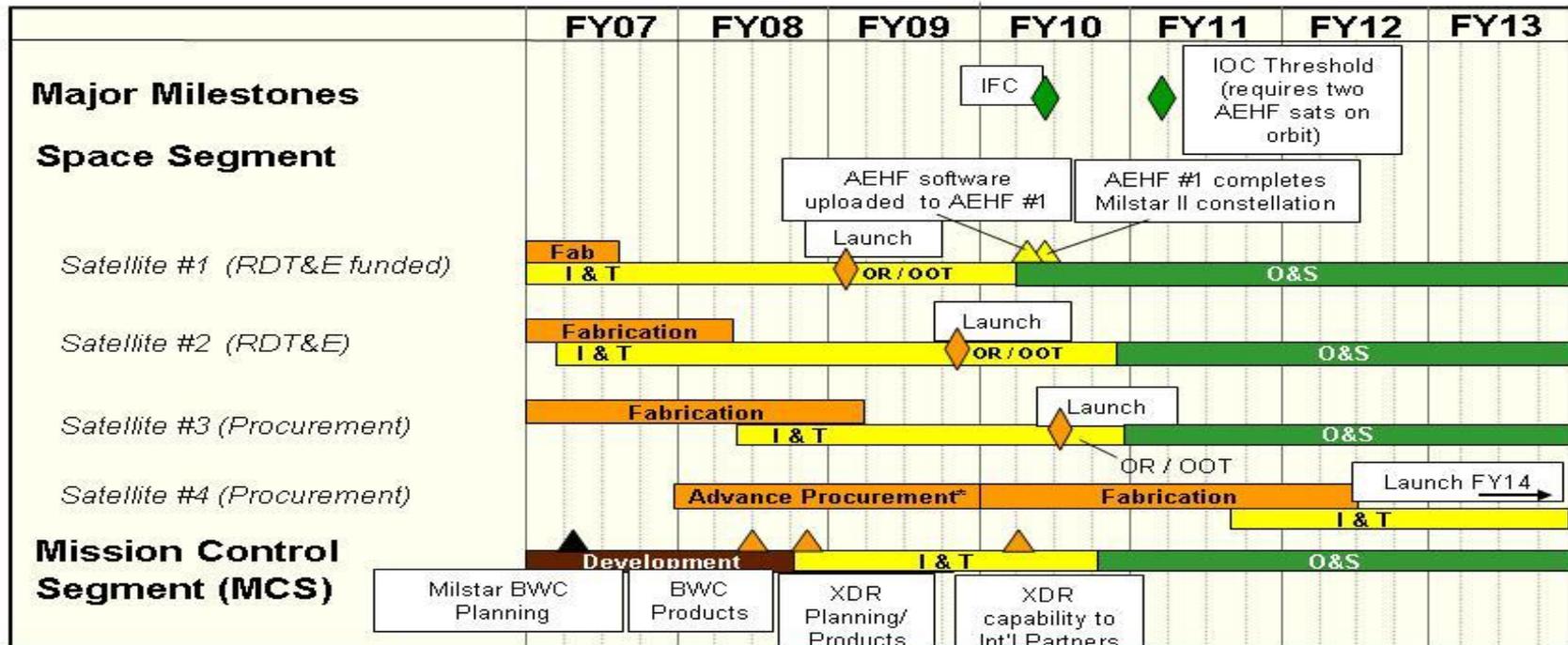
DATE

February 2008

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

PE NUMBER AND TITLE  
0603430F Advanced (EHF MILSATCOM (Space)

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4050 Advanced MILSATCOM



XDR: eXtended Data Rate    I&T: Integrate & Test    IFC: Initial Fielded Capability    BWC: Backwards Compatibility  
 IOC: Initial Operational Capability    O&S: Operations & Sustainment    OR/OOT: Orbit Raising /On-orbit Test

■ Concept activities    ■ Design / development    ■ Integration / test  
■ Production / fielding    ■ Operations / sustainment    △◇ Key events

\*Parts Obsolescence study for fourth AEHF satellite begins Jan 08, long-lead parts contract Award will follow.

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>February 2008</b>
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Fielded Ground Segment Software Increment 3 (World-wide Planning for Resource Allocation of 5 Milstar payloads and 1st AEHF Comm Payload)	2Q		
(U) Payload delivered for integration onto Space Vehicle	2Q		
(U) Field Ground Segment Software Increment 4 (World-wide Flight and Payload Control of 5 Milstar satellites and 1 AEHF satellite)		2Q	
(U) Launch first AEHF satellite			1Q
(U) Field Ground Segment Software Increment 5 (XDR Planning/Products)		4Q	
(U) Launch second AEHF satellite			4Q