

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))				PROJECT 644050		
COST (\$ in Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
644050	Advanced MILSATCOM	54,623	95,529	246,396	519,832	470,373	340,566	243,105	292,883	2,383,788
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	2	2
<p>(U) <u>A. Mission Description</u> Develop and acquire Advanced Extremely High Frequency (EHF) Military Satellite Communications (MILSATCOM) satellites and cryptography with necessary modifications to the mission control segment for survivable, jam-resistant, worldwide, secure communications for the strategic and tactical warfighter. Advanced EHF (AEHF) satellites will replenish the existing EHF system (Milstar) with additional capability and decreased launch costs. The program is utilizing as much commercial technology as possible and will ensure technology development sufficient for a medium launch vehicle-class satellite. The Advanced EHF capability will be available for first launch in 2006. Activities funded under this program element implement the Secretary of Defense's 1993 MILSATCOM Bottom Up Review decision to field a lower cost, advanced MILSATCOM satellite as a replenishment to Milstar. The DoD Space Architect in 1996 and OSD-led MILSATCOM Transition Team in 1997 reviewed the options for future EHF service and concluded this program is the best solution for those requirements. The Advanced EHF program implements the architecture defined by the DoD Space Architect and directed by the Joint Space Management Board and will address requirements in the MILSATCOM Capstone Requirements Document (24 April 1998) and the Operational Requirements Document approved by the Joint Requirements Oversight Council in April 1999.</p>										
<p>(U) <u>FY 1999 (\$ in Thousands)</u></p>										
(U)	\$1,761	Continued Advanced EHF technology validation								
(U)	\$52,324	Continued processing Subsystem Engineering Model Program								
(U)	\$538	Continued AEHF Program Office Support								
(U)	\$54,623	Total								
<p>(U) <u>FY 2000 (\$ in Thousands)</u></p>										
(U)	\$1,700	Continued Advanced EHF technology validation								
(U)	\$29,391	Complete Processing Subsystem Engineering Model Program								
(U)	\$34,000	Begin System Definition								
(U)	\$22,400	Satellite Cryptographic Development								
(U)	\$4,822	Continued AEHF Program Office Support Activities								
(U)	\$3,216	Joint Terminal Engineering Office (JTEO) Support								
(U)	\$95,529	Total								
Project 644050		Page 1 of 6 Pages				Exhibit R-2 (PE 0603430F)				

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<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">(U) \$8,000</td> <td>Complete System Definition</td> </tr> <tr> <td>(U) \$199,898</td> <td>Begin Engineering & Manufacturing Development (EMD) of the first AEHF satellite</td> </tr> <tr> <td>(U) \$18,300</td> <td>Continued Satellite Cryptographic Development</td> </tr> <tr> <td>(U) \$16,888</td> <td>Program Office Support - Continue AEHF Support and Transition Advanced EHF MILSATCOM Joint Program Office Support from Milstar PE</td> </tr> <tr> <td>(U) \$3,310</td> <td>JTEO Support</td> </tr> <tr> <td>(U) \$246,396</td> <td>Total</td> </tr> </table> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in Budget Activity 4, Research Category Demonstration and Validation, since it funds Advanced EHF technology validation and modeling.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 55%;"></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2000 PBR)</td> <td style="text-align: center;">54,150</td> <td style="text-align: center;">97,066</td> <td style="text-align: center;">248,587</td> <td style="text-align: center;">2,231,640</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">54,413</td> <td style="text-align: center;">97,066</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: center;">-263</td> <td style="text-align: center;">-7</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: center;">-1,057</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td style="text-align: center;">-774</td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: center;">1,836</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: center;">-306</td> <td style="text-align: center;">-756</td> <td></td> <td></td> </tr> <tr> <td> f. Other</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2000 PBR</td> <td></td> <td></td> <td style="text-align: center;">-2,191</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2001 PBR</td> <td style="text-align: center;">54,623</td> <td style="text-align: center;">95,529</td> <td style="text-align: center;">246,396</td> <td style="text-align: center;">2,383,788</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p> <p>\$1,836K FY99 Below Threshold Reprogramming action funded a Cost As an Independent Variable (CAIV) analysis to prioritize program requirements within approved funding levels.</p> <p>-\$2,191K FY01 adjustment due to inflation rate changes.</p> <p>FY04 and FY05 adjustments realigned funds from the Missile Procurement appropriation to the RDT&E appropriation to more appropriately align funding with work being performed.</p>			(U) \$8,000	Complete System Definition	(U) \$199,898	Begin Engineering & Manufacturing Development (EMD) of the first AEHF satellite	(U) \$18,300	Continued Satellite Cryptographic Development	(U) \$16,888	Program Office Support - Continue AEHF Support and Transition Advanced EHF MILSATCOM Joint Program Office Support from Milstar PE	(U) \$3,310	JTEO Support	(U) \$246,396	Total		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2000 PBR)	54,150	97,066	248,587	2,231,640	(U) Appropriated Value	54,413	97,066			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-263	-7			b. Small Business Innovative Research	-1,057				c. Omnibus or Other Above Threshold Reprogram		-774			d. Below Threshold Reprogram	1,836				e. Rescissions	-306	-756			f. Other					(U) Adjustments to Budget Years Since FY 2000 PBR			-2,191		(U) Current Budget Submit/FY 2001 PBR	54,623	95,529	246,396	2,383,788
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(U) D. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</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 Missile Proc:									
(U) PE 0303604, Advanced EHF MILSATCOM Procurement	0	0	0	20,000	376,135	280,753	300,100	630,421	1,607,409
(U) PE 33600F, AF Wideband 3080 (CCSC)	0	0	4,852	5,411	5,503	8,115	2,209	0	26,090
(U) Related RDT&E:									
(U) PE 63854F, BPAC 836780, AF Wideband 3600 (CCSC)	0	0	11,500	13,300	24,400	46,600	25,900	0	121,700
(U) PE 0604479F, Milstar LDR/MDR Satellite Communications									
(U) PE 0604577N, EHF Satellite Communications									
(U) PE 0603432F, Polar MILSATCOM									
(U) PE 0303601F, MILSATCOM Terminals									
(U) E. Acquisition Strategy									
The Advanced MILSATCOM strategy is a competitive acquisition between two contractors for System Definition. One contractor will be selected to perform Engineering and Manufacturing Development and fabrication of five satellites. Advanced MILSATCOM will incorporate improvements from Milstar and commercial SATCOM practices into the next generation EHF military communication satellite system.									
(U) F. Schedule Profile									
				<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>	

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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))	PROJECT 644050
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(U) **F. Schedule Profile Continued**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Milestone I DAB			*									
(U) Award System Definition Contract					*							
(U) Processing Engineering Model Completion									X			
(U) Milestone II/III - DAB										X		
(U) Award EMD Contract												X
(U) First Launch - (FY06)												

* = Completed Event X = Planned Event

Corrects Milestone II error in previous version

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603430F Advanced (EHF MILSATCOM (Space))				644050		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>		
(U)	MILSATCOM Technology Validation Program					1,761	1,700	0		
(U)	Processing Subsystem Engineering Model					52,324	29,391	0		
(U)	Program Office Support					538	4,822	16,888		
(U)	System Definition					0	34,000	8,000		
(U)	Cryptographic Development					0	22,400	18,300		
(U)	Satellite EMD					0	0	199,898		
(U)	Joint Terminal Engineering Office (JTEO)					0	3,216	3,310		
(U)	Total					54,623	95,529	246,396		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Product Development Organizations</u>									
	NSA	MIPR	Dec 99	55,200	55,200	0	0	22,400	18,300	0
	JTEO	PR	Continuing	95,644	95,644	2,000	0	3,216	3,310	74,778
	MIT/LL	MIPR	Feb 95	11,110	11,110	1,527	1,761	1,700	0	0
	Hughes	CPFF	May 97	66,851	66,851	25,392	26,771	15,012	0	0
	TRW	CPFF	May 97	60,862	60,862	22,151	25,553	14,379	0	0
	Various	Various	95-01	N/A	N/A	66,659		0	0	0
	Lockheed Martin	FFP	Oct FY00	21,000	21,000	0	0	17,000	4,000	0
	Hughes	FFP	Oct FY00	21,000	21,000	0	0	17,000	4,000	0
	EMD Contractor (TBD)	TBD	Apr FY01	TBD	TBD	0	0	0	199,898	1,710,145
	<u>Support and Management Organizations</u>									
	Various	Various	2Q95			2,752	538	4,822	16,888	81,836
	<u>Test and Evaluation Organizations</u>									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 2000
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))	PROJECT 644050
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(U) **Government Furnished Property:**

<u>Item</u> <u>Description</u>	<u>Contract</u> <u>Method/Type</u> <u>or Funding</u> <u>Vehicle</u>	<u>Award or</u> <u>Obligation</u> <u>Date</u>	<u>Delivery</u> <u>Date</u>	<u>Total Prior</u> <u>to FY 1999</u>	<u>Budget</u> <u>FY 1999</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
				<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 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				117,729	54,085	90,707	229,508	1,784,923	2,276,952
Subtotal Support and Management				2,752	538	4,822	16,888	81,836	106,836
Subtotal Test and Evaluation									
Total Project				120,481	54,623	95,529	246,396	1,866,759	2,383,788