

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1998		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604441F Space Based IR Arch (EMD) (Space)					
COST (\$ In Thousands)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	193,018	316,467	538,438	564,239	395,905	269,798	143,059	350,725	2,801,661
3616 SBIRS High Element EMD	189,318	316,467	538,438	564,239	395,905	269,798	143,059	350,725	2,760,563
0002 Miniature Sensor Technology Integration (MSTI)	3,700	0	0	0	0	0	0	0	41,098
Quantity of RDT&E Articles	0	0	0	0	1*	1*	2*	0	4

Notes: Unit cost not available.  
 SBIRS Low EMD funding previously included in this PE was transferred to PE #604442F to establish a SBIRS Low EMD Program Element.  
 \*One each HEO sensor delivered in FY01 and FY03, one each GEO spacecraft delivered in FY02 and FY03

(U) **A. Mission Description and Budget Item Justification**  
 (U) The Space-Based Infrared System's (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces or its allies. SBIRS will incorporate new technologies to enhance detection; improve reporting of ICBM, SLBM and tactical ballistic missiles; and provide critical mid-course tracking and discrimination data for national and theater missile defense. This will provide increased performance in order to meet requirements in US Space Command's Capstone Requirement Document and Operations Requirements Document. SBIRS will consist of satellites in Geosynchronous Orbits (GEO), Highly Elliptical Orbits (HEO) and Low Earth Orbits (LEO) and an integrated centralized ground station serving all SBIRS space elements and Defense Support System (DSP) satellites. Funding was provided in FY97 for the Miniature Sensor Technology Integration (MSTI) program which completed in FY97. This Program Element funds SBIRS Engineering and Manufacturing Development (EMD) activities and is assigned to Budget Activity 5, Engineering and Manufacturing Development.

(U) **Acquisition Strategy:**  
 (U) SBIRS is a lead program for acquisition streamlining. Program documentation has been consolidated into a single document, the Single Acquisition and Management Plan (SAMP). The pre-EMD contracts were competed in full and open competition. Two contracts were awarded to Lockheed/Loral/Aerojet and Hughes/TRW for the pre-EMD phase. A single contract was awarded to Lockheed Martin for the EMD phase.

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BUDGET ACTIVITY			PE NUMBER AND TITLE							
<b>5 - Engineering and Manufacturing Development</b>			<b>0604441F Space Based IR Arch (EMD) (Space)</b>							
<b>(U) B. Program Change Summary (\$ in Thousands)</b>										
		<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Total Cost</u>					
(U)	Previous President's Budget(FY1998 PB)	189,638	338,413	580,298	2,980,497					
(U)	Appropriated Value	199,190	338,413							
(U)	Adjustments to Appropriated Value									
	a. Cong Gen Reductions	-4,689	-13,580							
	b. SBIR	-4,863	-8,366							
	c. Omnibus or Other Above Threshold Reprogram									
	d. Below Threshold Reprogramming	3,700								
	e. Rescissions	-320								
(U)	Adjustments to Budget Years Since FY1998 PB			-41,860						
(U)	Current Budget Submit/FY 1999 President's Budget	193,018	316,467	538,438	2,801,661					
<b>(U) Change Summary Explanation:</b>										
Funding: FY97 BTR of \$3,700K for MSTI. \$320K supports congressional rescissions for the Bosnia supplemental.										
\$2,279K FY98 RDT&E is pending reprogramming to fund higher priority AF requirements.										
\$10.86M FY99 reduction for Non Pay inflation, \$31.0M realigned to PE 64442F to establish a SBIRS Low EMD program element.										
In order to maintain the program baseline, \$21.6M FY98 Above Threshold Reprogramming and \$25.9M Special Termination Cost Clause waiver will be submitted to Congress in early March 1998. Additional shortfalls are being fixed through internal program restructuring.										
Schedule: Not Applicable										
Technical: Not Applicable										
<b>(U) C. Other Program Funding Summary (\$ in Thousands)</b>										
		<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Complete</u>	<u>Total Cost</u>
(U)	Missile Procurement (PE 0305915F, BA-45, P-1-N/A)	0	0	0	0	33,510	214,402	188,455	5,478,000	5,914,367
<b>Related RDT&amp;E:</b>										
(U)	PE 603441F - SBIRS Dem/Val	252,492	202,433	160,262	154,133	115,398	0	0	0	1,432,558
(U)	PE 305911F - DSP	24,668	20,689	12,037	7,595	7,587	4,462	4,760	0	1,941,972
(U)	PE 604442F - SBIRS Low EMD	0	0	33,328	79,064	148,749	420,206	823,950	5,938,759	7,444,056

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 1998</b>
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<b>BUDGET ACTIVITY</b> <b>5 - Engineering and Manufacturing Development</b>	<b>PE NUMBER AND TITLE</b> <b>0604441F Space Based IR Arch (EMD) (Space)</b>
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(U) <b>D. <u>Schedule Profile</u></b>	<u>FY 1997</u>				<u>FY 1998</u>				<u>FY1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) EMD Authority To Proceed (ATP)	X											
(U) Preliminary Requirements Review (PPR)		X										
(U) GRND INC-1 Interim Design Review		X										
(U) HOSV/Spacecraft Prelim Design Rvw				X								
(U) GRND INC-2 Interim Design Review					X							
(U) System Preliminary Design Review					X							
(U) Payload Critical Design Review									X			
(U) HOSV/Spacecraft Critical Design Rvw										X		
(U) System Critical Design Review											X	
(U) Consolidated Grnd IOC for DSP												X
(U) Grnd IOC for HIGH (FY01)												
(U) First HEO Delivery (FY01)												
(U) First GEO Launch (FY02)												

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1998					
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604441F Space Based IR Arch (EMD) (Space)</b>				PROJECT <b>3616</b>				
COST (\$ In Thousands)				FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
3616 SBIRS High Element EMD				189,318	316,467	538,438	564,239	395,905	269,798	143,059	350,725	2,760,563
<p><b>(U) A. <u>Mission Description and Budget Item Justification</u></b>            (U) The Space-Based Infrared System's (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces or its allies. SBIRS will incorporate new technologies that would enhance detection; improve reporting of ICBM, SLBM and tactical ballistic missiles; and provide critical mid-course tracking and discrimination data for national and theater missile defense. The system will consist of satellites in Geosynchronous Orbits (GEO), Highly Elliptical Orbits(HEO) and Low Earth Orbits (LEO) and an integrated, centralized ground station serving all space elements of the SBIRS system and the Defense Support Program (DSP) satellites. This Program Element funds SBIRS High Engineering and Manufacturing Development (EMD) activities and is assigned to Budget Activity 7, Engineering and Manufacturing Development.</p> <p><b><u>(U) Acquisition Strategy:</u></b>            (U) SBIRS is a lead program for acquisition streamlining. The pre-EMD contracts were competed in full and open competition. Two contracts were awarded to Lockheed/Loral/Aerofjet and Hughes/TRW for the pre-EMD phase. A single contract was awarded to Lockheed Martin for the EMD phase.</p> <p>(U) <u>FY 1997</u></p> <ul style="list-style-type: none"> <li>- (U) \$171,918      Initiated EMD contracts for Space and Ground segment development</li> <li>- (U) \$ 7,200      Continued System Program Office Support</li> <li>- (U) \$ 10,200     Technical analysis and independent verification and validation of contractor by FFRDC</li> <li>- (U) \$189,318     Total</li> </ul> <p>(U) <u>FY 1998</u></p> <ul style="list-style-type: none"> <li>- (U) \$294,988     Continue EMD contracts for Space and Ground segment development</li> <li>- (U) \$ 9,000      Continue System Program Office Support</li> <li>- (U) \$ 2,279      Reserved for Anticipated Cut for Inflation Adjustment and Small Business Innovative Research</li> <li>- (U) \$ 10,200     Technical analysis and independent verification and validation of contractor by FFRDC</li> <li>- (U) \$316,467     Total</li> </ul> <p>(U) <u>FY 1999</u></p> <ul style="list-style-type: none"> <li>- (U) \$518,838     Continue EMD contracts for Space and Ground segment development</li> <li>- (U) \$ 9,400      Continue System Program Office Support</li> <li>- (U) \$ 10,200     Technical analysis and independent verification and validation of contractor by FFRDC</li> </ul>												
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1998			
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT			
<b>5 - Engineering and Manufacturing Development</b>			<b>0604441F Space Based IR Arch (EMD) (Space)</b>				<b>3616</b>			
- (U) \$ 538,438 Total										
<b>(U) B. Program Change Summary (\$ in Thousands)</b>										
		<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Total Cost</u>					
(U) Previous President's Budget(FY 1998 PB)		189,638	338,413	580,298	2,939,399					
(U) Appropriated Value		189,638	338,413							
(U) Adjustments to Appropriated Value										
a. Cong Gen Reductions			-13,580							
b. SBIR			-8,366							
c. Omnibus or Other Above Threshold Reprogram										
d. Below Threshold Reprogramming										
e. Rescissions		-320								
(U) Adjustments to Budget Years Since FY 1998 PB				-41,860						
(U) Current Budget Submit/ FY 1999 President's Budget		189,318	316,467	538,438	2,760,563					
<b>(U) Change Summary Explanation:</b>										
Funding: FY97 BTR of \$3,700K for MSTI. \$320K supports congressional rescissions for the Bosnia supplemental.										
\$2,279K FY98 RDT&E is pending reprogramming to fund higher priority AF requirements.										
\$10.86M FY99 reduction for Non Pay inflation, \$31.0M realigned to PE 64442F to establish a SBIRS Low EMD program element.										
In order to maintain the program baseline, \$21.6M FY98 Above Threshold Reprogramming and \$25.9M Special Termination Cost Clause waiver will be submitted to Congress in early March 1998. Additional shortfalls are being fixed through internal program restructuring.										
Schedule: Not Applicable										
Technical: Not Applicable										
<b>(U) C. Other Program Funding Summary (\$ in Thousands)</b>										
		<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Complete</u>	<u>Total Cost</u>
(U) Missile Procurement (PE 0305915F, BA-45, P-1-N/A)		0	0	0	0	33,510	214,402	188,455	5,478,000	5,914,367
<b>Related RDT&amp;E:</b>										
(U) PE 603441F - SBIRS Dem/Val		252,492	202,433	160,262	154,133	115,398	0	0	0	1,432,558
(U) PE 305911F - DSP		24,668	20,689	12,037	7,595	7,587	4,462	4,760	0	1,941,972
(U) PE 604442F - SBIRS Low EMD		0	0	33,328	79,064	148,749	420,206	823,950	5,938,759	7,444,056
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**February 1998**

BUDGET ACTIVITY
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**5 - Engineering and Manufacturing Development**

PE NUMBER AND TITLE
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**0604441F Space Based IR Arch (EMD) (Space)**

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1998	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604441F Space Based IR Arch (EMD) (Space)						PROJECT 3616	
<b>(U) D. <u>Schedule Profile</u></b>												
		<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) EMD Authority To Proceed (ATP)	X											
(U) Preliminary Requirements Review (PPR)		X										
(U) GRND INC-1 Interim Design Review		X										
(U) GRND INC-1 Final Design Review				X								
(U) Payload Preliminary Design Review				X								
(U) HOSV/Spacecraft Preliminary Design Rev					X							
(U) GRND INC-2 Preliminary Design Review					X							
(U) System Preliminary Design Review					X							
(U) Payload Critical Design Review									X			
(U) HOSV/Spacecraft Critical Design Review										X		
(U) GRND INC-2 Critical Design Review										X		
(U) System Critical Design Review											X	
(U) Consolidated Grnd IOC for DSP												X
(U) Grnd IOC for HIGH (FY01)												
(U) First HEO Delivery (FY01)												
(U) First GEO Launch (FY02)												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1998			
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>					PE NUMBER AND TITLE <b>0604441F Space Based IR Arch (EMD) (Space)</b>				PROJECT <b>3616</b>	
<b>(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u></b>										
					<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
(U) EMD Contract					171,918	295,767	519,617			
(U) System Program Office Support					7,200	9,000	9,400			
(U) Aerospace Corp					10,200	9,421	9,421			
(U) Adjustment: (Pending Reprogramming for Inf. Adj/SBIR)						2,279				
(U) Total					189,318	316,467	538,438			
<b>(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
<b>Performing Organizations:</b>										
Contractor or Government	Contract Method/Type	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1997	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>FY 1997</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
LMMS & TRW (Pre-EMD)	C/CPFF	Jul 95	164,943	164,943	164,943	0	0	0	0	164,943
LMMS (EMD)	C/CPAF	Nov 96				171,918	295,767	519,617	1,322,767	2,310,069
TBD(Technology)	Various	Sep 95	11,600	11,600	11,600	0	0	0	0	11,600
TBD(Phenom)	Various	Sep 95	17,350	17,350	17,350	0	0	0	0	17,350
Sandia Nat'l Lab (Cobra Brass)	Various	Sep 95	10,000	10,000	10,000	0	0	0	0	10,000
<u>Support and Management Organizations</u>										
Aerospace Corp	MORD	Sep 95	N/A	N/A	19,200	10,200	9,421	9,421	71,400	119,642
Prgm Mgmt Supt	Various	Sep 95	N/A	N/A	12,900	7,200	9,000	9,400	81,400	119,900
<u>Test and Evaluation Organizations</u>										
Not Applicable										
Project 3616					Page 7 of 11 Pages			Exhibit R-3 (PE 0604441F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1998			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604441F Space Based IR Arch (EMD) (Space)				PROJECT 3616	
<b>(U) B. Budget Acquisition History and Planning Information Continued (\$ in Thousands)</b>										
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1997	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
<b>Government Furnished Property:</b> Not Applicable.										
Subtotal Product Development					203,893	171,918	294,988	518,838	1,322,767	2,513,962
Subtotal Support and Management					32,100	17,400	19,200	19,600	152,800	239,542
Subtotal Test and Evaluation					0	0	0	0	0	0
Adjustment (FY 98 pending reprogramming for inflation adjustments/SBIR)							2,279			7,059
Adjustment (SBIRS Pre-EMD Contract Adjustments)					4,780					
Total Project					240,773	189,318	316,467	538,438	1,475,567	2,760,563

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<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>							DATE <b>February 1998</b>		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604441F Space Based IR Arch (EMD) (Space)</b>				PROJECT <b>0002</b>	
COST (\$ In Thousands)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
0002 Miniature Sensor Technology Integration (MSTI)	3,700	0	0	0	0	0	0	0	41,098
<b>(U) A. <u>Mission Description and Budget Item Justification</u></b>									
(U) The Miniature Sensor Technology Integration (MSTI) program provides phenomenology data for the SBIRS program.									
(U) <u>FY 1997</u>									
- (U) \$3,700	Continued on-orbit operations & program support.								
- (U) \$3,700	Total								
(U) <u>FY 1998</u>									
- (U) 0	Total								
(U) <u>FY 1999</u>									
- (U) 0	Total								
<b>(U) B. <u>Program Change Summary (\$ in Thousands)</u></b>									
	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY1999</u>	<u>Total Cost</u>					
(U) Previous President's Budget(FY 1998 PB)	0	0	0	37,398					
(U) Appropriated Value	0								
(U) Adjustments to Appropriated Value									
a. Cong Gen Reductions									
b. SBIR									
c. Internal Realignment Reprogramming									
d. Below Threshold Reprogramming	3,700								
(U) Adjustments to Budget Years Since FY 1998 PB									
(U) Current Budget Submit/ FY 1999 President's Budget	3,700	0	0	41,098					
(U) Change Summary Explanation:									
Funding:	BTR of \$3,700K in FY97 for MSTI continued on-orbit operations and program support.								
Schedule:	Not Applicable								
Technical:	Not Applicable								
Project 0002			Page 9 of 11 Pages				Exhibit R-2 (PE 0604441F)		

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<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 1998</b>
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<b>BUDGET ACTIVITY</b> <b>5 - Engineering and Manufacturing Development</b>	<b>PE NUMBER AND TITLE</b> <b>0604441F Space Based IR Arch (EMD) (Space)</b>	<b>PROJECT</b> <b>0002</b>
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**(U) C. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Complete</u>	<u>Total Cost</u>
<b><u>Related RDT&amp;E:</u></b>									
(U) PE 603441F - SBIRS Dem/Val	252,492	202,433	160,262	154,133	115,398	0	0	0	1,432,558
(U) PE 305911F - DSP	24,668	20,689	12,037	7,595	7,587	4,462	4,760	0	1,941,972
(U) PE 604442F - SBIRS Low EMD	0	0	33,328	79,064	148,749	420,206	823,950	5,938,759	7,444,056

**(U) D. Schedule Profile**

	<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1
(U) On-orbit Operations	X	X	X						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1998			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604441F Space Based IR Arch (EMD) (Space)				PROJECT 0002	
<b>(U) A. <u>Project Cost Breakdown (\$000 in Thousands)</u></b>										
					<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
(U) On-orbit Ops and Support					3,700					
(U) Total Program					3,700	0	0			
<b>(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u></b>										
<b>Performing Organizations:</b>										
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1997	Budget FY 1997	Budget FY 1998	Budget FY 1999	Budget to Complete	Total Program
<u>Product Development Organizations</u>										
Spectrum Astro	CPAF	Sep 95			44,815	3,700	0	0	0	48,515
<u>Support and Management Organizations</u>										
Not Applicable										
<u>Test and Evaluation Organizations</u>										
Not Applicable										
<b>Government Furnished Property:</b>										
Not Applicable										
Subtotal Product Development					44,815	3,700	0	0	0	48,515
Subtotal Support and Management					0	0	0	0	0	0
Subtotal Test and Evaluation					0	0	0	0	0	0
Adjustment					-7,417	0	0	0	0	-7,417
Total Project					37,398	3,700	0	0	0	41,098
Project 0002					Page 11 of 11 Pages			Exhibit R-3 (PE 0604441F)		

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