

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1999
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development
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COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	72,987	97,990	90,347	55,314	53,447	47,338	48,275	49,323	Continuing	Continuing
1011 Joint Service Electronic Combat Systems Tester	8,807	9,738	2,940	2,990	0	0	0	0	0	46,251
2462 Compass Call (CC)	1,205	777	749	827	2,576	2,604	2,659	2,714	Continuing	Continuing
3891 Advanced IR Counter Measures (AIRCM) (Includes CMWS, ASTE, LAIRCM and AAR-47)*	33,542	41,068	55,534	23,422	15,281	13,756	13,992	14,328	Continuing	Continuing
3945 RF Towed Decoy Systems	29,433	41,936	31,124	28,075	35,590	30,978	31,624	32,281	Continuing	Continuing
4832 Precision Location and Identification (PLAID)	0	4,471	0	0	0	0	0	0	0	4,471
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

* AIRCM includes four subprojects: Common Missile Warning System (CMWS), Advanced Strategic and Tactical Infrared Expendables (ASTE), Large Aircraft IRCM (LAIRCM), and software upgrade to AAR-47.

(U) A. Mission Statement:

This program element (PE) consolidates engineering development efforts related to Air Force Electronic Warfare (EW) requirements. It centralizes USAF funding and management of common EW systems development. These funds transition EW technologies to an installed operational capability. This PE executes projects to provide capabilities to deter, detect, deceive and counter enemy acquisition and tracking of DoD operational platforms plus enemy Radio Frequency (RF) information operations worldwide. These projects include Infrared (IR) and RF situational awareness and self protection systems, command and control warfare (C2W) electronic attack systems, and the test equipment needed to support them.

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(U) B. Budget Activity Justification:

A key criterion for the included projects in this program element is the need for engineering and manufacturing developmental activities, therefore these programs are in Budget Activity 5 - Engineering and Manufacturing and Development.

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

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY1999 PB)	75,700	90,126	75,992	53,971	Continuing
(U) Appropriated Value	80,465	98,626			
(U) Adjustments to Appropriated Value					
a. General/Congressional Reduction	-2,935	-636			
b. SBIR	-1,840				
c. Omnibus/Other Above Threshold Reprogramming	-515				
d. Below Threshold Reprogramming	-2,188				
(U) Adjustments to Budget Years Since FY 1999 PB			14,355	1,343	
(U) Current Budget Submit/2000 PB	72,987	97,990	90,347	55,314	Continuing

(U) Significant Program Changes:

\$4.5M was added in FY99 appropriation to transition PLAID to EMD.
 \$14.355M was added in FY00 to continue CMWS development
 \$1.343M was added in FY01 to continue development of ASTE flares
 FY 99 \$2.946M identified as a source for SBIR

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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 1011
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COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
1011 Joint Service Electronic Combat Systems Tester	8,807	9,738	2,940	2,990	0	0	0	0	0	46,251

(U) A. Mission Statement

(U) The Joint Service Electronic Combat Systems Tester (JSECST) will fill both an Air Force and Navy operational requirement for a small, adaptable, and highly mobile tester capable of verifying the system level performance of installed electronic countermeasures systems. Present maintenance concepts rely on the built-in-test (BIT) capabilities of the line replaceable units (LRUs) to verify system performance. However, BIT fails to detect faults in LRU interfaces and installed aircraft (Group A) hardware. Particular emphasis in the JSECST program will be placed on size and weight since the test set must deploy with the operational unit.

(U) FY 1998 (\$ in Thousands)

- (U) \$7,248 Continued Core Test Set Development
- (U) \$501 Continued SPO Support
- (U) \$852 Continued Test Program Set (TPS) Lab Support
- (U) \$206 Continued Government Test
- (U) \$8,807 Total

(U) FY 1999 (\$ in Thousands)

- (U) \$6,881 Complete Core Test Set Development
- (U) \$847 Continue SPO Support
- (U) \$1,302 Complete Test Program Set (TPS) Lab Support
- (U) \$415 Continue Government Test
- (U) \$293 Identified as a source for SBIR
- (U) \$9,738 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 1999																						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 1011																						
<p>(U) <u>FY 2000 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$2,540 Initiate Test Program Set (TPS) Engineering Manufacturing Development (EMD) Contract - (U) \$350 Continue SPO Support - (U) \$50 Continue Government Test - (U) \$2,940 Total <p>(U) <u>FY 2001 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$2,647 Continue Test Program Set (TPS) Development Contract - (U) \$268 Continue SPO Support - (U) \$75 Continue Government Test - (U) \$2990 Total <p>(U) B. <u>Project Change Summary - Description of Significant Changes:</u> Not Applicable.</p> <p>(U) C. <u>Other Program Funding Summary (\$ in Thousands):</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: center;"><u>FY 1998</u></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>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>FY 2004</u></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>To Complete</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Aircraft Procurement, AF PE 27442F (Common ECM Equipment), In Service Direct Ground Support Equipment, BP-12</td> <td></td> <td></td> <td style="text-align: center;">7,472</td> <td style="text-align: center;">18,285</td> <td style="text-align: center;">33,788</td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p>(U) D. <u>Acquisition Strategy:</u> The acquisition strategy is competitive, cost-plus contracts.</p>				<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>FY 2004</u>	<u>FY 2005</u>	<u>To Complete</u>	<u>Total Cost</u>	(U) Aircraft Procurement, AF PE 27442F (Common ECM Equipment), In Service Direct Ground Support Equipment, BP-12			7,472	18,285	33,788					TBD
	<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>FY 2004</u>	<u>FY 2005</u>	<u>To Complete</u>	<u>Total Cost</u>														
(U) Aircraft Procurement, AF PE 27442F (Common ECM Equipment), In Service Direct Ground Support Equipment, BP-12			7,472	18,285	33,788					TBD														
Project 1011	Page 4 of 39 Pages	Exhibit R-2A (PE 0604270F)																						

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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 1011
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(U) E. Schedule Profile:

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) Critical Design Review		*														
(U) Test Readiness Review					*											
(U) Developmental Test & Evaluation						X										
(U) Functional Configuration Audit									X							
(U) Initial Operational T&E (1Q-00)									X							
(U) Milestone III (May-00)													X			
(U) Production Lots award (June-00)													X			

* - Denotes a completed event
X - Denotes a planned event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1999				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604270F EW Development			PROJECT 1011				
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>											
				FY 1998	FY 1999	FY 2000	FY 2001				
(U) EMD Contract				7,248	6,881	2,540	2,590				
(U) SPO Support				501	847	350	325				
(U) Government Test				206	415	50	75				
(U) TPS Lab Support				852	1,302	0	0				
(U) Identified as a source for SBIR				0	293	0	0				
(U) Total				8,807	9,738	2,940	2,990				
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
Performing Organizations:											
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 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Identified as a source for SBIR							293				293
<u>Product Development Organizations</u>											
AAI	CPAF	Mar 96	28,236	28,236	13,340	7,248	6,881	0	0	0	27,469
Follow on TPS Contractor	TBD	Jun 00		5,241	0	0	0	2,540	2,590	0	5,130
<u>Support and Management Organizations</u>											
ASC/LNA, NAVAIR, Wright Labs		Various			8,141	1,353	2,149	350	325	0	12,318
<u>Test and Evaluation Organizations</u>											
Project 1011											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 1011	
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 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
AFDTC, Eglin AFB FL					588	206	415	50	75	0	1,334
(U) B. Budget Acquisition History and Planning Information Continued (\$ in Thousands)											
Government Furnished Property:											
Not Applicable											
Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Subtotal Product Development					13,340	7,248	6,881	2,540	2,590	0	32,599
Subtotal Support and Management					8,141	1,353	2,149	350	325	0	12,318
Subtotal Test and Evaluation					588	206	415	50	75	0	1,334
Identified as a source for SBIR					0	0	293	0	0	0	293
Total Project					22,069	8,807	9,738	2,940	2,990	0	46,544

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 1999
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 2462
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COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
2462 Compass Call (CC)	1,205	777	749	827	2,576	2,604	2,659	2,714	Continuing	Continuing

(U) A. Mission Statement:

(U) COMPASS CALL is DoD's airborne wide area coverage offensive counter information system. It denies, disrupts, degrades and deceives adversary voice and data communications, disrupting his ability to effectively command and control his forces in the field. The Tactical Radio Acquisition and Countermeasures Subsystem (TRACS) replaces the aging compressive receiver suite responsible for acquiring target systems with a digital, reprogrammable receiver system that will enable COMPASS CALL to remain viable in countering the next generation of deployed threats. Additionally, new target (class 6) countermeasures capability is under development. This effort funds the non-recurring efforts associated with TRACS development for COMPASS CALL. Production funding for TRACS is in PE 27253.

(U) FY 1998 (\$ in Thousands):

- (U) \$ 412 Continued TRACS Basic Prototype EMD
- (U) \$ 320 Continued High Band Exciter (HBE) upgrade development
- (U) \$ 473 Continued New signals countermeasures development
- (U) \$1205 Total

(U) FY 1999 (\$ in Thousands):

- (U) \$250 Conduct TRACS-Basic prototype flight testing
- (U) \$402 Continue new target class countermeasures development
- (U) \$100 Conduct new target class countermeasures initial flight assessment (including range costs)
- (U) \$25 Identified as a source for SBIR
- (U) \$777 Total

(U) FY 2000 (\$ in Thousands):

- (U) \$449 Continued New target class countermeasures development
- (U) \$150 Initiate Block 30 threat signal update
- (U) \$150 Initiate Block 30 waveform update
- (U) \$749 Total

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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 2462
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- (U) FY 2001 (\$ in Thousands):
- (U) \$327 Continue New target class countermeasures development
 - (U) \$250 Continue New target class countermeasures operational flight test
 - (U) \$125 Continue Block 30 threat signal update
 - (U) \$125 Continue Block 30 waveform update
 - (U) \$827 Total

B. Project Change Summary - Description of Significant Changes:
 Congress added \$12.5M in FY99 for the Compass Call TRACS program. This increase has been applied to AF PE 27253F.

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

	<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>FY 2004</u>	<u>FY 2005</u>	<u>Budget to Complete</u>	<u>Total Cost</u>
(U) Compass Call (RDT&E), AF PE 27253F	0	12,419	4,908	5,886	3,919	3,913	3,908	0	Cont.	Cont.

(U) **D. Acquisition Strategy:**
 CPIF/AF contracting will be employed for all activities.

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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 2462
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(U) E. Schedule Profile:

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) HBE Flight Test			*			X	X									
(U) TRACS Flight Test			*			X	X									
(U) TRACS PDR							X									
(U) New Countermeasures#			*	*	*	X	X	X	X	X	X	X	X	X	X	X
(U) New CM Flt Test							X	X			X	X				
(U) Block 30 Signals Update#									X	X	X	X	X	X	X	X
(U) Block 30 Waveform Update#									X	X	X	X	X	X	X	X

- New countermeasures development and Block 30 signals/waveform updates are a continuing effort to improve the existing system's ability to effectively counter emerging threats. Due to the dynamic nature of this platform's mission, this effort is an on-going level of effort.

* - Denotes a completed event
X - Denotes a planned event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1999				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604270F EW Development				PROJECT 2462			
(U) A. <u>Project Cost Breakdown (\$ in Thousands):</u>											
				<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>				
(U) HBE/HBS				312	0	0	0				
(U) TRACS-Basic				420	250	0	0				
(U) New Threat (class 6) CM Development				473	502	449	577				
(U) Block 30 Signals Update Development				0	0	150	125				
(U) Block 30 Waveform Update Development				0	0	150	125				
(U) Identified as a source for SBIR				0	25	0	0				
(U) Total				1,205	777	749	827				
(U) B. <u>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 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Identified as a source for SBIR							25				25
<u>Product Development Organizations</u>											
Sanders	SS/CPIF	1QFY99		TBD	26,206	893	402	749	577	Cont.	Cont.
Raytheon Ft Wayne	SS/CPIF	N/A		23,543	23,223	312	0	0	0	0	23,543
GTE	SS/CPIF	N/A		8,875	8,875	0	0	0	0	0	8,875
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 2462	
(U) B. Budget Acquisition History and Planning Information Continued (\$ in Thousands):											
Performing Organizations: (Continued)											
<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 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Support and Management Organizations</u>											
Misc (SPO, Labs)	Various	N/A			3,172	0	0	0	0	Cont.	Cont.
<u>Test and Evaluation Organizations</u>											
EPG, Ft. Huachuca NM	MIPR	2QFY99			500	0	250	0	125	Cont.	Cont.
WTR	616	2QFY99			500	0	100	0	125	Cont.	Cont.
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 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>											
Misc					1,594	0	0	0	0	Cont.	Cont.
<u>Support and Management Property</u>											
Not Applicable											
<u>Test and Evaluation Property</u>											
Not Applicable											
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604270F EW Development				PROJECT 2462		
<u>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 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Subtotal Product Development				59,898	1,205	402	749	577	Cont.	Cont.
Subtotal Support and Management				3,172	0	0	0	0	Cont.	Cont.
Subtotal Test and Evaluation				1,000	0	350	0	250	Cont.	Cont.
Identified as a source for SBIR				0	0	25	0	0	0	25
Total Project				64,070	1,205	777	749	827	Cont.	Cont.

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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development				PROJECT 3891	
<i>COST (\$ In Thousands)</i>	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
3891 Advanced IR Counter Measures (AIRCМ) (Includes CMWS, ASTE, LAIRCМ and AAR-47)*	33,542	41,068	55,534	23,422	15,281	13,756	13,992	14,328	Continuing	Continuing
<p>* AIRCM includes four subprojects: Common Missile Warning System (CMWS), Advanced Strategic and Tactical Infrared Expendables (ASTE), Large Aircraft IRCM (LAIRCМ), and software upgrade to AAR-47.</p> <p>(U) A. Mission Statement:</p> <p>The Advanced IR Countermeasure (AIRCМ) project contains related aircraft self-protection efforts aimed at increasing aircraft survivability against the increasing threat of sophisticated surface to air (SAM) and air to air missiles (AAM), which may employ such features as next-generation electro-optics or dual infrared and radio frequency seekers. AIRCM consists of four efforts, the tri-service Common Missile Warning System (CMWS), USAF/USN Advanced Strategic and Tactical Infrared Expendable (ASTE), USAF Large Aircraft IRCM (LAIRCМ), and USAF/USN AAR-47 software upgrade. CWMS will provide timely warning of a threat missile attack and cue expendable countermeasures. ASTE will provide advanced IR expendable countermeasures. LAIRCМ will demonstrate an advanced directed laser countermeasures suite for large signature aircraft as EMD risk reduction. The software upgrade to the AAR-47 is aimed at decreasing its false alarm rate. The CMWS program was formed in FY96 by combining the FY95 USA Advanced Threat Infrared Countermeasures (ATIRCМ) program with the USAF/USN Advanced Missile Warning program and the Advanced Strategic and Tactical Infrared Expendables effort. USAF CMWS installation is planned for the F-16 and A-10 aircraft. ASTE flares will be functionally compatible with existing ALE-40, 45, and 47 dispenser systems and will be employed across multiple USAF and USN weapon systems. This project, managed as a consolidated AIRCM effort, is an integral part of a Joint Service IRCM program that will maximize commonality across Air Force, Navy, and Army aircraft.</p>										
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<p>(U) <u>FY 1998 (\$ in Thousands)</u></p> <p>(U) CMWS Program:</p> <ul style="list-style-type: none"> – (U) \$9,921 Continued Common Missile Warning System Joint Program Costs – (U) \$3,580 Continued F-16 aircraft (Group A) EMD integration – (U) \$1,078 Continued A-10 aircraft (Group A) EMD integration – (U) \$7,047 Continued Test and Evaluation (AF only) – (U) \$300 Continued Modeling and Simulation (AF only) – (U) \$1,046 Continued Military Worth Study (formerly called AOA) – (U) \$543 Continued Mission Support – (U) \$23,515 CMWS Total <p>(U) ASTE Program:</p> <ul style="list-style-type: none"> – (U) \$2,742 Continued ASTE Joint Program Costs – (U) \$5,574 Initiate C-17 Development – (U) \$429 Continued Test and Evaluation – (U) \$133 Continued Verification and Validation – (U) \$360 Continued Modeling & Analysis – (U) \$789 Continued Mission Support – (U) \$10,027 ASTE Total <p>(U) LAIRCM Program:</p> <ul style="list-style-type: none"> – (U) \$0 LAIRCM Total <p>(U) AAR-47 Program:</p> <ul style="list-style-type: none"> – (U) \$0 AAR-47 Total <p style="padding-left: 40px;">(U) \$33,542 AIRCM Total</p>		
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(U) FY1999 (\$ in Thousands)

(U) **CMWS Program:**

- (U) \$18,718 Common Missile Warning System Joint Program Costs
- (U) \$8,854 Continue F-16 aircraft (Group A) EMD integration
- (U) \$1,868 Continue A-10 aircraft (Group A) EMD integration
- (U) \$2,969 Continue Test and Evaluation (AF only)
- (U) \$360 Continue Military Worth Study (formerly called AOA)
- (U) \$680 Continue Mission Support
- (U) Identified as a source for SBIR
- \$1,030
- (U) \$34,479 CMWS Total

ASTE Program:

- (U) \$0 ASTE Joint Program Cost
- (U) Continue C-17 Development
- \$2,122
- (U) Continue Test and Evaluation
- \$1,050
- (U) \$400 Continue Modeling and Analysis
- (U) Continue Verification and Validation
- \$100
- (U) Continue Mission Support
- \$1,311
- (U) Identified as a source for SBIR
- \$159
- (U) ASTE Total
- \$5,142

LAIRCM Program:

- (U) \$100 Initiate Installation Analysis
- (U) \$141 Initiate Technology Transition & Affordability Analysis
- (U) \$293 Initiate Flight Testbed Design

DATE
February 1999

BUDGET ACTIVITY
5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604270F EW Development

- (U) \$141 Initiate Modeling and Simulation
- (U) \$72 Initiate Mission Support
- (U) \$24 Identified as a source for SBIR
- (U) \$771 LAIRCM Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development		February 1999
PE NUMBER AND TITLE 0604270F EW Development		PROJECT 3891
<p>AAR-47 Program</p> <ul style="list-style-type: none"> - (U) \$190 Initiate Data Collection - (U) \$465 Initiate Modeling and Analysis Study - (U) \$21 Identified as a source for SBIR - (U) \$676 AAR-47 Total - (U) \$41,068 AIRCM Total <p>(U) <u>FY 2000 (\$ in Thousands):</u></p> <p>(U) CMWS Program:</p> <ul style="list-style-type: none"> - (U) \$26,080 Common Missile Warning System Joint Program Costs - (U) \$11,983 Continue F-16 aircraft (Group A) EMD integration - (U) \$3,000 Continue A-10 aircraft (Group A) EMD integration - (U) \$7,725 Continue Test and Evaluation (AF only) - (U) \$0 Continue and complete Military Worth Study (formerly called AOA) - (U) \$750 Continue Mission Support - (U) \$49,538 CMWS Total <p>(U) ASTE Program:</p> <ul style="list-style-type: none"> - (U) \$0 ASTE Joint Program Cost - (U) \$106 Continue C-17 Development - (U) \$700 Continue Test and Evaluation - (U) \$330 Continue Verification and Validation - (U) \$400 Continue Modeling and Analysis - (U) \$751 Continue Mission Support - (U) \$2,287 ASTE Total 		
Project 3891	Page 17 of 39 Pages	Exhibit R-2A (PE 0604270F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development		February 1999
PE NUMBER AND TITLE 0604270F EW Development		PROJECT 3891
<p>(U) LAIRCM Program:</p> <ul style="list-style-type: none"> - (U) \$400 Complete Flight Testbed Design - (U) \$100 Initiate Affordability Study - (U) \$1,720 Initiate and Complete Testbed Fabrication - (U) \$200 Continue Modeling & Simulation - (U) \$137 Continue Mission Support - (U) \$400 Initiate Flight Test Support - (U) \$2,957 LAIRCM Total <p>(U) AAR-47 Program:</p> <ul style="list-style-type: none"> - (U) \$200 Complete Modeling & Analysis - (U) \$280 Conduct and complete Algorithm Development - (U) \$272 Conduct and complete Verification & Validation - (U) \$752 AAR-47 Total <p>- (U) \$55,534 AIRCM Total</p> <p><u>FY 2001 (\$ in Thousands):</u></p> <p>(U) CMWS Program:</p> <ul style="list-style-type: none"> - (U) \$3,370 Common Missile Warning System Joint Program Costs - (U) \$7,410 Continue F-16 aircraft (Group A) EMD integration - (U) \$2,000 Continue A-10 aircraft (Group A) EMD integration - (U) \$6,480 Continue Test and Evaluation (AF only) - (U) \$800 Continue Mission Support - (U) \$20,060 CMWS Total <p>(U) ASTE Program:</p> <ul style="list-style-type: none"> - (U) \$796 Continue C-17 Flare Development - (U) \$500 Continue Test & Evaluation - (U) \$300 Continue Verification and Validation - (U) \$300 Continue Modeling & Simulation - (U) \$456 Continue Mission Support 		
Project 3891	Page 18 of 39 Pages	Exhibit R-2A (PE 0604270F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 1999		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development			PROJECT 3891		
- (U) \$2,352 ASTE Total (U) LAIRCM Program: - (U) \$250 Initiate Testbed Integration - (U) \$100 Conduct Acceptance Tests - (U) \$410 Continue Flight Test Support - (U) \$50 Continue Modeling and Simulation - (U) \$100 Conduct reporting activities - (U) \$100 Continue Mission Support - (U) \$1,010 LAIRCM Total (U) AAR-47 Program: - (U) \$0 AAR-47 Total - (U) \$23,422 AIRCM Total (U) B. <u>Project Change Summary - Description of Significant Changes:</u> \$2.396M was added in FY01 to continue development of ASTE flares. (U) C. <u>Other Program Funding Summary (\$ in Thousands):</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>FY 2004</u>	<u>FY 2005</u>	To <u>Comple</u> <u>e</u>	<u>Total</u> <u>Cost</u>
(U) Aircraft Procurement, AF, PE 27442F Mods, F-16/A-10 CMWS, BA-5	11	0	0	782	56,517	83,057	94,381	99,194	Cont.	Cont.
(U) Procurement of Ammunition, AF, PE 28030F ASTE flares, BA-1, Appn 3011	0	4,886	4,835	4,828	4,980	4,990	4,767	4,873	Cont.	Cont.
(U) RDT&E, AF, PE 63270F EO/IR Warning & Countermeasures, BA- 3, BPAC 691X, Funds multiple EO/IR Science and Technology projects	12,809	8,855	10,497	12,858	10,700	10,683	11,057	11,337	Cont.	Cont.
Project 3891	Page 19 of 39 Pages						Exhibit R-2A (PE 0604270F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and Manufacturing Development	0604270F EW Development	3891
<p>(U) D. Acquisition Strategy: The planned acquisition strategy is competitive cost-plus award fee. LAIRCM will use existing Laser Infrared Flyout Experiment (LIFE) contract option which is cost-plus fixed fee.</p>		
Project 3891	Page 20 of 39 Pages	Exhibit R-2A (PE 0604270F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)													DATE February 1999						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604270F EW Development						PROJECT 3891							
(U) E. Schedule Profile:																			
		<u>FY 1998</u>					<u>FY 1999</u>					<u>FY 2000</u>					<u>FY 2001</u>		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
(U) Project 3891, AIRCM																			
(U) CMWS Contr Qual Test Start *																			
(U) CMWS Platform Integration *																			
(U) CMWS DT&E X																			
(U) CMWS IOT&E X																			
(U) CMWS MSIII (Mar 03)																			
(U) ASTE DT&E – Fighter X																			
(U) ASTE DT&E – Covert *																			
(U) ASTE OT&E - Fighter X																			
(U) ASTE OT&E – Covert X																			
(U) ASTE MS III - Fighter X																			
(U) ASTE MS III - Covert X																			
(U) ASTE PDR - Transport X																			
(U) ASTE CDR – Transport X																			
(U) ASTE DT&E-Transport X																			
(U) ASTE OT&E -Transport X																			
(U) ASTE PDR - B-1B (TBD)																			
(U) LAIRCM Dev Acq Strategy X																			
(U) LAIRCM MS II Documentation X																			
(U) LAIRCM RFP X																			
(U) AAR-47 SW Upgrade Contract X																			
(U) AAR-47 Collect/Validate False Alarm Data X																			
(U) AAR-47 Analyze Data X																			
* - Denotes a completed event X - Denotes a planned event																			
NOTE: CMWS Program currently in restructure. Milestones for DT&E, IOT&E and MSIII will slip to 4QFY00 at the earliest																			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE		
BUDGET ACTIVITY		PROJECT		
5 - Engineering and Manufacturing Development		February 1999		
PE NUMBER AND TITLE		PROJECT		
0604270F EW Development		3891		
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>				
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) CMWS Program				
(U) CMWS Joint Program Costs	9,921	18,718	26,080	3,370
(U) F-16 aircraft (Group A) EMD integration	3,580	8,854	11,983	7,410
(U) A-10 aircraft (Group A) EMD integration	1,078	1,868	3,000	2,000
(U) Test and Evaluation (AF only)	7,047	2,969	7,725	6,480
(U) Modeling and Simulation (AF only)	300	0	0	0
(U) Military Worth Study (formerly called AOA)	1,046	360	0	0
(U) Mission Support	543	680	750	800
(U) Identified as a source for SBIR	0	1,030	0	0
Sub-Total CMWS Total	23,515	34,479	49,538	20,060
(U) ASTE Program				
(U) ASTE Prime Contract Costs	8,316	2,122	106	796
(U) ASTE Government Test & Evaluation	429	1,050	700	500
(U) ASTE Verification & Validation	133	100	330	300
(U) ASTE Modeling and Analysis	360	400	400	300
(U) ASTE Mission Support	789	1,311	751	456
(U) Identified as a source for SBIR	0	159	0	0
Sub-Total (ASTE)	10,027	5,142	2,287	2,352

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1999		
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT
5 - Engineering and Manufacturing Development	0604270F EW Development			3891
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) LAIRCM Program				
(U) LAIRCM Installation Analysis	0	100	0	0
(U) LAIRCM Tech Transition/Affordability Planning	0	141	0	0
(U) LAIRCM Modeling and Simulation	0	141	200	50
(U) LAIRCM Development Mission Support	0	72	137	100
(U) Flight Testbed Design	0	293	400	0
(U) Affordability Analysis	0	0	100	0
(U) Testbed Fabrication	0	0	1,720	0
(U) Flight Test Support	0	0	400	410
(U) Testbed Integration	0	0	0	250
(U) Acceptance Tests	0	0	0	100
(U) Reporting	0	0	0	100
(U) Identified as a source for SBIR	0	24	0	0
Sub-Total (LAIRCM)	0	771	2,957	1,010
(U) AAR-47 Program				
(U) AAR-47 Data Collection	0	190	0	0
(U) AAR-47 Modeling & Analysis	0	465	200	0
(U) AAR-47 Algorithm Development	0	0	280	0
(U) AAR-47 Verification & Validation	0	0	272	0
(U) Identified as a source for SBIR	0	21	0	0
Sub-Total (AAR-47)	0	676	752	0
Total (CMWS, ASTE, LAIRCM, and AAR-47)	33,542	41,068	55,534	23,422

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 3891	
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
Performing Organizations:											
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 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Identified as a source for SBIR							1,234				1,234
<u>Product Development Organizations</u>											
CMWS Sanders	CAAF/CPFF	Sep 95		52,002	28,408	5,730	4,533	16,844	1,136	Cont.	Cont.
CMWS Upgrade	TBD	TBD		38,198	0	0	0	4,457	4,504	Cont.	Cont.
CMWS Integration	CPAF	Various		68,829	20,128	4,735	11,471	15,208	9,541	Cont.	Cont.
ASTE - Tracor	CPAF	Nov 95		Cont.	8,324	8,316	2,122	106	796	Cont.	Cont.
LAIRCM - Lockheed Martin Akron OH	CPFF	TBD		3,400	0	0	700	2,450	250	0	3,400
AAR-47 - GTRI	TBD	2Q99		0	0	0	655	752	0	0	1,407
<u>Support and Management Organizations</u>											
CMWS - CAS INC	CPFF	Sep 95		31,651	14,830	4,006	3,720	2,913	2,394	Cont.	Cont.
CMWS - MWS	T&M	Jun 97		4,190	927	1,046	1,092	1,125	0	0	4,190
CMWS - Mod & Sim	Various			2,596	2,296	300	0	0	0	0	2,596
CMWS -Misc	Various			22,298	5,644	500	3,537	3,655	1,885	Cont.	Cont.
Project 3891				Page 24 of 39 Pages				Exhibit R-3 (PE 0604270F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 3891	
<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 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
ASTE M&A – SAIC	PR	Various		2,554	1,149	305	400	400	300	0	2,554
ASTE V&V – Mac	PR	Various		1,089	226	133	100	330	300	0	1,089
B											
ASTE – Misc	Various	Various		Cont.	35,460	844	1,311	751	456	Cont.	Cont.
LAIRCM Flight A/C Support - contractor	TBD	June 99		1,416	0	0	47	507	760	Cont.	Cont.
TBD											
<u>Test and Evaluation Organizations</u>											
ASTE – 46TW	Various	Various		2,897	750	147	800	700	500	Cont.	2,897
ASTE – Misc	Various	Various		Cont.	0	282	250	0	0	Cont.	Cont.
46TW/AFFTC/Sanders Support	Various	Various		36,050	10,045	7,198	9,096	5,336	600	2,522	34,797

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 1999		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604270F EW Development				PROJECT 3891		
Government Furnished Property:										
	Contract			Total						
Item	Method/Type	Award or		Prior to	Budget	Budget	Budget	Budget	Budget to	Total
<u>Description</u>	or Funding	Obligation	Delivery	FY 1998	FY 1998	FY 1999	FY 2000	FY 2001	Complete	Program
	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property:</u>										
Not Applicable										
<u>Support and Management Property:</u>										
Not Applicable										
<u>Test and Evaluation Property:</u>										
Not Applicable										
Subtotal Product Development				56,860	18,781	19,481	39,817	16,227	Cont.	Cont.
Subtotal Support and Management				60,532	7,134	10,207	9,681	6,095	Cont.	Cont.
Subtotal Test and Evaluation				10,795	7,627	10,146	6,036	1,100	Cont.	Cont.
Identified as a source for SBIR				0	0	1,234	0	0	0	1,234
Total Project				128,187	33,542	41,068	55,534	23,422	Cont.	Cont.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 1999
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 3945
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COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
3945 RF Towed Decoy Systems	29,433	41,936	31,124	28,075	35,590	30,978	31,624	32,281	Continuing	Continuing

Note: RDT&E funds are used for integration, lab, and test assets. Hardware is purchased by component, not as a complete upgrade kit, therefore aircraft funding does not completely portray the ALE-50/IDECM Programs.

(U) A. Mission Statement:

(U) This project develops, integrates and tests radio frequency (RF) towed decoy systems on several aircraft. RF towed decoys are low cost countermeasures that provide increased survivability against monopulse, semi-active, and active RF missile threats during the terminal portion of an engagement. The program is developing two classes of decoy systems, the ALE-50 and the Integrated Defensive Electronic Countermeasures (IDECM). Both of these efforts are joint programs with the Navy as lead service. Air Force funding pays for unique Air Force development requirements and integration and test on Air Force platforms.

(U) ALE-50: The Air Force ALE-50 program is developing, integrating, and testing a modified version of the Navy's ALE-50 decoy system for the F-16 and B-1B. The components of the F-16 system include: the F-16 pylon assembly (modified 16S350 pylon), launcher/controller, magazines, canister, towline assembly, and the ALE-50 decoy called the Advanced Airborne Expendable Decoy (AAED). The major components of the B-1B system include: the Multi-Platform Launch Controller (MPLC), launcher, magazine, canister, towline assembly and the AAED.

(U) IDECM: The Air Force is participating in IDECM to jointly develop a common IDECM techniques generator (TG) and a high power Fiber Optic Towed Decoy (FOTD). Air Force funding pays for unique Air Force development costs under IDECM as well as integration and test on the F-15. The Defensive Suppression Upgrade Program (DSUP) program will fund integration and test of IDECM hardware on the B-1B.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 1999
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and Manufacturing Development	0604270F EW Development	3945
<p>(U) <u>FY 1998 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$1,156 Completed ALE-50 Common Launcher Development - (U) \$325 Completed ALE-50 Test Support - (U) \$1,195 Completed ALE-50 Mission Support - (U) \$23,072 Continued IDECM Common - (U) \$2,593 Continued IDECM F-15 - (U) \$1,092 Continued IDECM Mission Support - (U) \$29,433 Total <p>(U) <u>FY 1999 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$21,425 IDECM Common - (U) \$17,750 Continue IDECM F-15 - (U) \$1,501 Continue Mission Support - (U) \$1,260 Identified as a source for SBIR - (U) \$41,936 Total <p>(U) <u>FY 2000 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$2,236 IDECM Common - (U) \$27,362 Continue IDECM F-15 - (U) \$1,526 Continue Mission Support - (U) \$31,124 Total <p>(U) <u>FY 2001 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$716 IDECM Common - (U) \$26,209 Continue IDECM F-15 - (U) \$1,150 Continue Mission Support - (U) \$28,075 Total <p>(U) B. <u>Project Change Summary - Description of Significant Changes:</u> In FY98 the ALE-50/B-1 integration went to a B-1 P3I program which freed up money for the ALE-50 common launcher, i.e., the Dual Compatible Launcher development effort. The F-15 program was rephased to accommodate the funding profile. In FY99 and FY00 the F-15 program was rephased to accommodate the funding profile.</p>		
Project 3945	Page 28 of 39 Pages	Exhibit R-2A (PE 0604270F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 1999
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 3945
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(U) C. Other Program Funding Summary (\$ in Thousands)

ALE-50	<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>FY 2004</u>	<u>FY 2005</u>	<u>To Complete</u>	<u>Total Cost</u>
(U) Aircraft Procurement, AF PE 27442F										
(U) Mods (F-16 & B-1B), BP-11	\$59,076									
(U) War Consumable (decoys), BP-17	\$33,136	\$25,533	\$20,853	\$32,283	\$28,588	\$50,538	\$46,048	\$47,084	Cont.	Cont.
(U) Aircraft Procurement, AF PE 27133F										
(U) Mods (F-16), BP-11		\$18,662	\$18,176	\$18,334	\$5,143	\$1,426	\$0	\$9,741	Cont.	Cont.
(U) Aircraft Procurement, AF PE 11126F										
(U) Mods (B-1B), BP-11		\$33,124	\$35,954	\$32,650	\$29,421	\$5,549	\$3,368	\$0	Cont.	Cont.
IDECM	<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>FY 2004</u>	<u>FY 2005</u>	<u>To Complete</u>	<u>Total Cost</u>
(U) Aircraft Procurement, AF PE 27442F										
(U) War Consumable (decoys), BP-17	\$0	\$0	\$0	\$4,334	\$17,705	\$24,897	\$52,557	\$53,607	Cont.	Cont.
(U) Mods (B-1B), BP-11	\$20,425	\$0	\$0	\$6,306	\$7,687	\$6,914	\$7,099	\$7,244	Cont.	Cont.
(U) Mods (F-15), BP-11	\$0	\$0	\$0	\$0	\$8,233	\$21,670	\$22,239	\$22,692	Cont.	Cont.

(U) D. Acquisition Strategy:

The acquisition strategy for ALE-50 is sole source, cost-plus, or firm fixed price.
 The acquisition strategy for IDECM is competitive, cost-plus.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 1999
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 3945
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(U) E. Schedule Profile

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) B-1B ALE-50 Milestone III		*														
(U) 1x 4 Dual Compatible Launcher Production Decision						X										
(U) Integrated MPLC Joint Program Review						X										
(U) F-15/FOTD Integration Decision MSII		*														
(U) F-15/FOTD Integration Contract Award						X										
(U) IDECM DT/OT&E							X									
(U) IDECM DT2B						X										
(U) First USAF Subsystem Delivery (IDECM)						X										
(U) F-15/FOTD PDR								X								
(U) B-1B DSUP FTRR									X							
(U) F-15/FOTD CDR											X					
(U) F-15/FOTD TRR														X		
(U) B-1B DSUP DT/OT&E													X			
(U) F-15/FOTD DT/OT&E																X

Note: See Change Summary

* - Denotes a completed event
X - Denotes a planned event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 3945	
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>											
					<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			
(U)	ALE-50 Common				1,156	0	0	0			
(U)	IDECM Common				23,072	21,425	2,236	716			
(U)	IDECM F-15				2,593	17,750	27,362	26,209			
(U)	Mission and Test Support				2,612	1,501	1,526	1,150			
(U)	Identified as a source for SBIR				0	1,260	0	0			
(U)	Total				29,433	41,936	31,124	28,075			
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
Performing Organizations:											
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 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Identified as a source for SBIR							1,260				1,260
<u>Product Development Organizations</u>											
B-1 ALE-50 – Rockwell/ (Boeing North American)	CPAF	Apr 95	14,294	14,294	14,294	0	0	0	0	0	14,294
Project 3945											
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 3945	
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 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
ESGD- Raytheon: USAF AN/ALE-50 EMD/ Support Contract – ESGD Raytheon	CPIF/FFP/ T&M	Jan 96	11,027	11,027	10,157	616	0	0	0	0	10,773
ALQ-184 (V)9 ESGD-Raytheon	CPFF	Jan 96	1,212	1,212	908	304	0	0	0	0	1,212
USAF IDECM: Development Sanders	CPAF	Nov 95	40,658	40,658	8,351	17,116	14,540	651	0	0	40,658
Development ESGD	CPIF	Jan 96	11,009	11,009	116	5,810	5,083	0	0	0	11,009
F-15 IDECM Integration-McAir/Northrop/Lockheed Martin	CPFF	Aug 97	120,112	120,112	2,488	2,593	17,750	27,362	26,209	Cont.	Cont.
IDECM Misc Development Contracts	Misc		8,855	8,855	442	358	1,802	1,585	716	Cont.	Cont.
Total Prime					36,756*	26,797	39,175	29,598	26,925	Cont.	Cont.

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 3945	
<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 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Support and Management Organizations</u>											
ASC/SM/YF											
ALE-50	Misc	As required	N/A		1,250	1,195	0	0	0	0	2,445
IDECM	Misc	As required	N/A		1,250	1,092	1,501	1,526	1,150	Cont.	Cont.
Total Support and management					2,500*	2,287	1,501	1,526	1,150	Cont.	Cont.
<u>Test and Evaluation Organizations</u>											
AFOTEC			N/A		1,545	55	0	0	0	0	1,600
Edwards			N/A		10	146	0	0	0	0	156
ALQ-184 v(9) flight test			N/A	N/A	300	124	0	0	0	0	424
Total Test					1,855*	325	0	0	0	0	2,180
* The funding prior to FY98 includes only FY97. The funding prior to FY97 was transferred from a classified PE. The total program and EACs include funding from FY97 and out because of the classified PE in FY96 and prior.											
(U) B. Budget Acquisition History and Planning Information Continued (\$ in Thousands)											
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 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property:</u>											
Not Applicable											
Project 3945											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1999			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604270F EW Development				PROJECT 3945		
<u>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 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Support and Management Property:</u> Not Applicable										
<u>Test and Evaluation Property:</u> Not Applicable										
Subtotal Product Development				36,756*	26,821	39,175	29,598	26,925	Cont.	Cont.
Subtotal Support and Management				2,500*	2,287	1,501	1,526	1,150	Cont.	Cont.
Subtotal Test and Evaluation				1,855*	325	0	0	0	0	2,180
Identified as a source for SBIR				0	0	1,260	0	0	0	1,260
Total Project				41,111*	29,433	41,936	31,124	28,075	Cont.	Cont.

* The funding prior to FY98 includes only FY97. The funding prior to FY97 was transferred from a classified PE. The total program and EACs include funding from FY97 and out because of the classified PE in FY96 and prior.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 1999
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 4832
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COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
4832 Precision Location and Identification (PLAID)	0	4,471	0	0	0	0	0	0	0	4,471

(U) A. Mission Statement

(U) PLAID will enhance aircrew situational awareness by providing precise on-board ground emitter location and Specific Emitter Identification (SEI). The improved situational awareness will allow combat pilots to effectively avoid RF SAM threats with minimal impact on mission goals. PLAID's emitter geolocation capability make it a candidate for SEAD targeting. PLAID goals include achieving precise geolocation and SEI at minimal cost by using existing aircraft RWR antennas and wiring (Group A hardware). By using the aircraft's radar warning receiver (RWR) antenna system, a 360 degree field view is achieved. PLAID development is currently focused on the ALR-69 RWR but PLAID technology can also be applied to other RWRs and platforms such as the ALR-56, ALR-67, and ERWE II as used on F-16s, F-15s, F-14s, and F/A-18s. PLAID has been identified as a critical technology for JSF, UCAVs, and advanced SEAD platforms. PLAID for ALR-69 RWR focuses on replacement of the ALR-69 frequency selectable receiver system (FSRS). The FSRS will be replaced with digital receiver assemblies, multi-channel receiver capability, and appropriate software. Techniques used include Doppler shift measurements, time of arrival measurements, high resolution signal measurement to collect unintentional modulation on pulse data, and coherent pulse processing.

(U) FY 1998 (\$ in Thousands):

– (U) \$0 Total

(U) FY 1999 (\$ in Thousands):

- (U) \$644 Establish Program Office
- (U) \$2,193 Continue Lab Risk Reduction Efforts (Refine PLAID hardware and Software risk reduction activities, develop system specification)
- (U) \$1,500 Military Worth Study (formerly called AOA)
- (U) \$134 Identified as a source for SBIR
- (U) \$4,471 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 1999
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 4832
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(U) FY 2000 (\$ in Thousands):

- (U) \$0 Total

(U) FY 2001 (\$ in Thousands):

- (U) \$0 Total

(U) B. Project Change Summary - Description of Significant Changes:

Funding: In response to a Congressionally directed increase, \$4.5M was added to this program element to transition the program from an Advanced Technology Demonstrator (ATD) into a EMD program.

Schedule: This program is transitioning from Advanced Development to EMD in FY99. The first Doppler ranging flight demonstration was conducted in May 1995. An F-15 PLAID hardware, identification and ranging demonstration was successfully completed in April 1998. The final PLAID demonstration of the real-time location algorithms will be completed in Mar 99. A detailed schedule will be developed as the program moves into EMD.

Technical: Perform risk reduction activities to transition the PLAID system from a 6.3 advanced development to the Engineering and Manufacturing Development phase.

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

Not Applicable

(U) D. Acquisition Strategy

Acquisition strategy is being developed by the program transition team.

(U) E. Schedule Profile

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) PLAID Demonstration						X										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)											DATE February 1999				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604270F EW Development						PROJECT 4832			
<u>FY 1998</u>						<u>FY 1999</u>				<u>FY 2000</u>			<u>FY 2001</u>		
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) PMD Approval					X										
(U) Establish Program Office					X										
(U) Begin Management Transition						X									
* - Denotes a completed event															
X - Denotes a planned event															

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1999				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604270F EW Development				PROJECT 4832			
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>											
				<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>				
(U) Establish Program Office			0		644	0	0				
(U) Continue Lab Risk Reduction Efforts (Refine PLAID hardware and Software risk reduction activities, develop system specification)			0		2,193	0	0				
(U) Military Worth Study (formerly called AOA)			0		1,500	0	0				
(U) Identified as a source for SBIR				0						0	
				134		0					
(U) Total			0	4,471	0	0					
(U) B. <u>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 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Identified as a source for SBIR							134				134
<u>Product Development Organizations</u>											
Not Applicable											
Project 4832				Page 38 of 39 Pages				Exhibit R-3 (PE 0604270F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	
5 - Engineering and Manufacturing Development										February 1999	
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
5 - Engineering and Manufacturing Development					0604270F EW Development					4832	
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 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
<u>Support and Management Organizations</u>											
Not Applicable											
<u>Test and Evaluation Organizations</u>											
Not Applicable											
(U) B. Budget Acquisition History and Planning Information Continued (\$ in Thousands)											
Government Furnished Property:											
Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
<u>Product Development Property</u>											
Not Applicable											
<u>Support and Management Property</u>											
Not Applicable											
<u>Test and Evaluation Property</u>											
Not Applicable											
Subtotal Product Development					0	0	3,193	0	0		3,193
Subtotal Support and Management					0	0	644	0	0		644
Project 4832					Page 39 of 39 Pages					Exhibit R-3 (PE 0604270F)	

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BUDGET ACTIVITY
5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604270F EW Development

Subtotal Test and Evaluation	0	0	500	0	0	500
Identified as a source for SBIR	0	0	134	0	0	134
Total Project			4,471			4,471