

UNCLASSIFIED

PE NUMBER: 0604270F
 PE TITLE: EW Development

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	68.781	92.804	138.393	197.116	229.278	216.962	148.440	Continuing	TBD
1011 Joint Service Electronic Combat Systems Tester	3.496	0.000	0.000	0.000	0.000	0.000	0.000	0.000	48.434
3891 Advanced IR Counter Measures (AIRCМ)	9.492	5.407	0.000	0.000	0.000	0.000	0.000	0.000	47.050
3945 TEWS Upgrade	24.905	41.052	20.905	13.928	4.022	2.031	2.044	Continuing	TBD
4832 Precision Location and Identification (PLAID)	21.588	19.600	17.953	1.496	0.000	0.000	0.000	0.000	52.966
8462 Airborne Electronic Attack	9.300	26.745	99.535	181.692	225.256	214.931	146.396	Continuing	TBD

BPAC 653891 (AIRCМ) includes three subprojects: Loitering EW Killer (LEWK) ACTD, Advanced Strategic and Tactical Infrared Expendables (ASTE), and software upgrades to the passive UV missile warner, the AAR-47. BPAC 658462 (AEA) includes two subprojects: Airborne Electronic Attack and Miniature Air Launched Decoy (MALD).

(U) A. Mission Description and Budget Item Justification

This program element (PE) consolidates Air Force funding and management of common Electronic Warfare (EW) systems from engineering development through transition to operational capability. EW is an integral part of offensive and defensive Counterair, Counterland, and Countersea operations. EW systems influence, deceive, disrupt, degrade, deny, and destroy threats to air operations throughout the electro-magnetic spectrum. This PE supports Electronic Support Measures (ESM), Electronic Protection (EP), and Electronic Attack (EA). ESM programs support the collection, analysis and dissemination of information related to the detection, geolocation, characterization, and identification of threats to air operations. EP programs provide self-protection through active and passive measures that deceive threats to air operations. EA programs provide kinetic and non-kinetic means to defeat threats that rely on the electro-magnetic spectrum.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	67.226	74.034	42.554
(U) Current PBR/President's Budget	68.781	92.804	138.393
(U) Total Adjustments	1.555	18.770	
(U) Congressional Program Reductions		-0.830	
Congressional Rescissions			
Congressional Increases		23.800	
Reprogrammings	3.406	-4.200	
SBIR/STTR Transfer	-1.851		

(U) Significant Program Changes:

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- FY2003, Project 658462, \$4.0M reprogrammed to MALD for continued development of the Miniature Air Launched Decoy Program.
- FY2004, Project 653891, Advanced IR Countermeasures, received Congressional Plus-up of \$4.2M for Loitering Electronic Warfare Killer (LEWK) ACTD.
- FY2004, Project 654832, Precision Location and Identification (PLAID), received Congressional Plus-up of \$9.7M
- FY2004, received Congressional Plus-up of \$3.9M for Rapid Replacement of Mission Critical Logistics Electronic Components--funds temporarily allocated to Project 654832, PLAID for administrative purposes only
- FY2005, Project 658462, \$42M added for continued development of the Miniature Air Launched Decoy Program and \$57.5 added for initiation of Airborne Electronic Attack development

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0604270F EW Development			1011 Joint Service Electronic Combat Systems Tester		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
1011 Joint Service Electronic Combat Systems Tester	3.496	0.000	0.000	0.000	0.000	0.000	0.000	0.000	48.434
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

FY2004, Project 651011, JSECST Follow-on Test Program Set (FOTPS) Engineering, Manufacturing and Development extended into FY04 due to late delivery of core test sets which were required to complete FOTPS development. Carry over of \$0.6M of FY03 RDT&E funding and internal reprogramming of \$0.75M FY04 funding to complete JSECST development effort.

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

The Joint Service Electronic Combat Systems Tester (JSECST) fills a combined Air Force and Navy operational requirement for a small, adaptable, and highly mobile tester capable of verifying system level performance of installed electronic countermeasures systems. JSECST provides an organizational-level flight line capability for verifying operational status of aircraft-installed electronic combat (EC) systems including Group A antennas and transmission lines. JSECST will fill a void in current Air Force end-to-end test capability. The JSECST system consists of core test sets (CTS), nomenclature AN/USM-670, test program sets (TPS), and software development stations (SDS). The CTS provides the stimulus, measurement, operator-interface, analysis and control functions common across all applications. The TPSs provide aircraft specific hardware interfaces and software packages to employ the CTS. The SDS provides computer resources for developing and maintaining CTS and TPS software. Initial TPS will support the F-15C. The Follow-on Test Program Set (FOTPS) program will design, develop, assemble, integrate, test, and deliver TPSs for use with the CTS for additional aircraft. The follow-on Air Force platforms include the F-15E, F-16 (Blocks 25/30/32/40/42/50/52), and OA/A-10. Navy platforms include the AV-8B, F/A-18 A/B and the F-14 B/D. (Navy platforms will be funded by the Navy.) JSECST is intended to meet the organizational level support equipment requirements of electronic combat systems for service through a 20-year life cycle. Deliveries began in FY03 for initial platforms and will continue through FY05 for follow-on platforms. SDD continues for follow-on platforms at the same time as systems are delivered for initial platforms.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments / Planned Programs	0.000	0.000	0.000
(U) Continue FOTPS Contract	2.650	0.000	0.000
(U) Continue SPO Support	0.494	0.000	0.000
(U) Continue Government Test	0.250	0.000	0.000
(U) Continue TPS Lab Support	0.102	0.000	0.000
(U) Total Cost	3.496	0.000	0.000

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development	PROJECT NUMBER AND TITLE 1011 Joint Service Electronic Combat Systems Tester
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(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</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) AF RDT&E									
(U) Other APPN									
(U) Aircraft Procurement, AF PE 27442F (Common ECM Equipment), In Service Direct Ground Support Equipment	5.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.472
(U) Initial Spares	0.313	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.464
(U) Total Aircraft Procurement	5.713	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.936

(U) D. Acquisition Strategy

The acquisition strategy is competitive, cost-plus contracts for CTS development. FOTPS acquisition strategy is a sole-source, cost plus contract. Production and support contract is sole source.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604270F EW Development				PROJECT NUMBER AND TITLE 1011 Joint Service Electronic Combat Systems Tester				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
AAI	CPAF	Hunt Valley MD	26.922								26.922	
FO TPS AAI	CPIF	Hunt Valley MD	2.933	2.650						0.850	6.433	
Subtotal Product Development			29.855	2.650		0.000		0.000		0.850	33.355	0.000
Remarks:												
(U) <u>Support</u>												
NAVAIR & Boeing TEWS Lab	MIPR	NAS Lakenhurst NJ & Boeing St Louis Mo	6.759	0.102						0.000	6.861	
Subtotal Support			6.759	0.102		0.000		0.000		0.000	6.861	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
53 EWG, 46TW	PR	Eglin AFB FL	1.509	0.250						0.300	2.059	
Subtotal Test & Evaluation			1.509	0.250		0.000		0.000		0.300	2.059	0.000
Remarks:	Element includes detailed planning, support data reduction and reports from such testing											
(U) <u>Management</u>												
ASC/AANT	Various	WPAFB, OH	4.994	0.494						0.200	5.688	
Subtotal Management			4.994	0.494		0.000		0.000		0.200	5.688	0.000
Remarks:	Element includes miscellaneous administrative costs incurred in the day-to-day operations by the program office. Costs include travel, office equipment, office supplies, printing, contract services, program management administration and communications expenses.											
(U) Total Cost			43.117	3.496		0.000		0.000		1.350	47.963	0.000

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

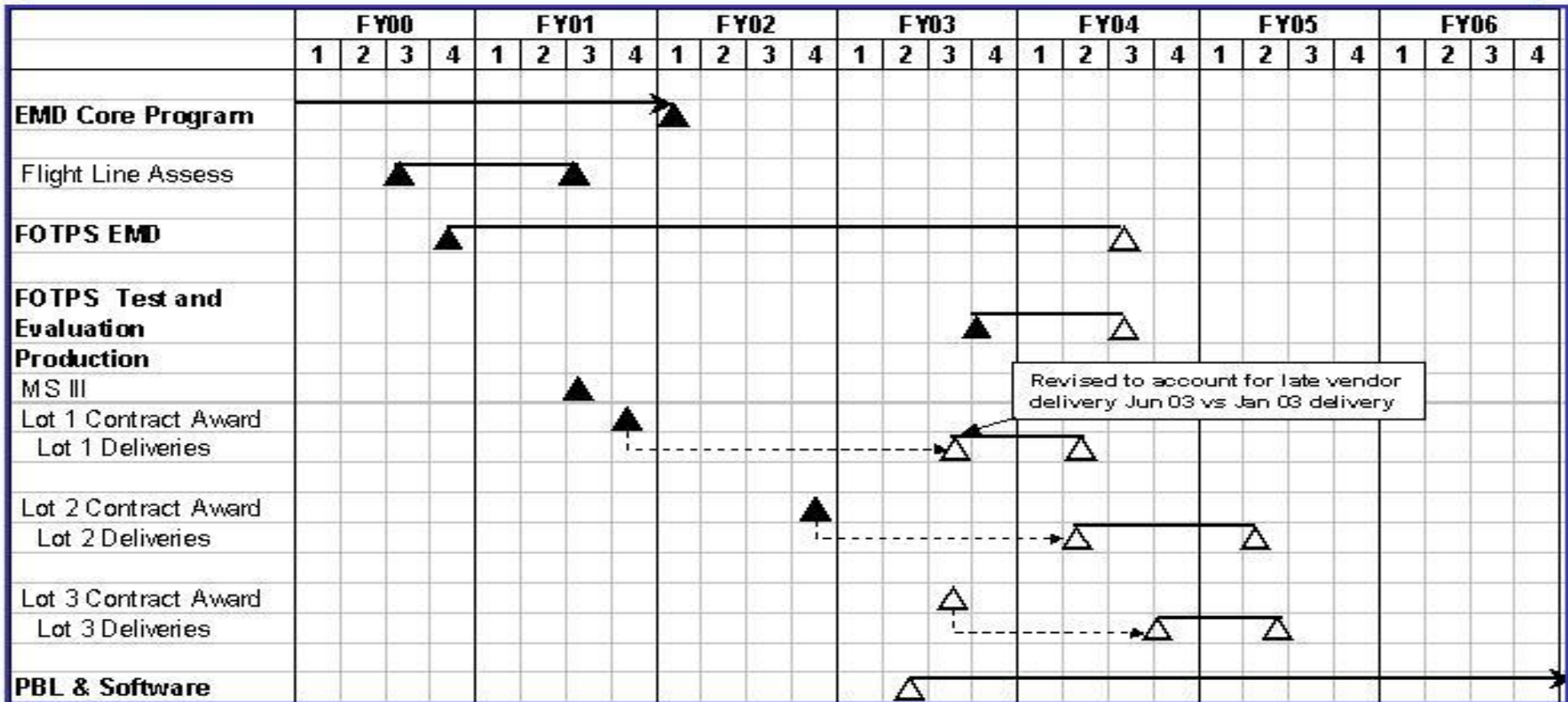
PE NUMBER AND TITLE
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PROJECT NUMBER AND TITLE
1011 Joint Service Electronic Combat Systems Tester



JSECST PROGRAM SCHEDULE

U.S. AIR FORCE



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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development	PROJECT NUMBER AND TITLE 1011 Joint Service Electronic Combat Systems Tester
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) CTS Production Lot 3 Award	3Q		
(U) Complete FOTPS Development		3Q	

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0604270F EW Development			3891 Advanced IR Counter Measures (AIRCМ)		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
3891 Advanced IR Counter Measures (AIRCМ)	9.492	5.407	0.000	0.000	0.000	0.000	0.000	0.000	47.050
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

*Advanced Infrared Countermeasures (AIRCМ) includes three subprojects: Advanced Strategic and Tactical IR Expendables (ASTE), software development to AAR-47 Missile Warning System (MWS), and Loitering Electronic Warfare Killer (LEWK) Advanced Concept Technology Development (ACTD). ASTE end products will transition to OO-ALC under PE 28030F WRM Ammunition for procurement/sustainment in FY05. AAR-47 MWS will transitioned to WR-ALC for sustainment in FY04 under PE 27040F Multi-Platform Electronic Warfare.

(U) A. Mission Description and Budget Item Justification

The Advanced Infrared Countermeasure (AIRCМ) project contains related aircraft self-protection efforts aimed at increasing aircraft survivability against the increasing threat of sophisticated surface-to-air and air-to-air missiles, which may employ such features as next-generation electro-optics or dual IR and radio frequency seekers. AIRCМ currently consists of three efforts, the USAF/USN ASTE program, USAF/USN AAR-47 MWS software development and LEWK ACTD. ASTE will provide advanced IR expendable countermeasures that will be functionally compatible with existing ALE-40, 45, and 47 dispenser systems and will be employed across multiple USAF weapon systems and the USN F/A-18 E/F. In addition, ASTE includes development of the Comet Pod that will dispense covert infrared countermeasures. This also explicitly includes any/all flare and decoy development that may be demanded or needed in current operations supporting the war on terrorism regardless of aircraft platform. These activities may also be paid for under platform specific funding. The AAR-47 MWS software development supports two configurations of software intended to decrease the AAR-47 MWS false alarm rate and improve threat detection for all large body aircraft. AAR-47 MWS will also support engineering and testing efforts for missile warning identified by users. LEWK ACTD was to demonstrate a long-endurance UAV for jamming and payload delivery. This ACTD was approved in FY01 and the USAF has been designated the lead service.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments / Planned Program	0.000	0.000	0.000
(U) LEWK ACTD Contract	5.195	4.200	0.000
(U) Continue ASTE Flare Development	2.153	1.207	0.000
(U) Continue COMET Pod Force Development	1.550	0.000	0.000
(U) AAR-47 Software Development	0.594	0.000	0.000
(U) Total Cost	9.492	5.407	0.000

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05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

3891 Advanced IR Counter Measures
(AIRCМ)(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</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) AF RDT&E									
(U) Other APPN									
(U) Procurement of Ammunition, AF, PE 28030F, Flares	24.321	31.841	32.259	30.036	31.246	123.440	125.120	Continuing	TBD
(U) LEWK ACTD (OSD PE63750D)	1.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) LEWK ACTD (USN PE0603502N)	1.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) LEWK ACTD (US Army PE0603003)	1.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD
(U) LEWK ACTD (USMC PE63640M)	0.000	0.000	0.000	0.000	0.000	0.000	0.000		TBD

(U) **D. Acquisition Strategy**

The planned acquisition strategy for ASTE is competitive cost-plus.

AAR-47 MWS activities are a time and materials contracted activity with a transition to sustainment.

Comet pod testing is fixed price.

LEWK is an ACTD under OSD.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604270F EW Development				PROJECT NUMBER AND TITLE 3891 Advanced IR Counter Measures (AIRCM)				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> Prior to FY 2003 Cost	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to Complete</u>	<u>Total</u> Cost	<u>Target</u> Value of Contract
				2003	2003	2004	2004	2005	2005			
(U) <u>Product Development</u>												
ASTE - Development	CP		17.440	0.522		0.500		0.000			18.462	
AAR-47 - GTRI (V22)	T&M		0.949	0.000							0.949	
Comet Pod FDE Phase I	Fixed Price		0.700	0.000		0.000		0.000			0.700	
Subtotal Product Development			19.089	0.522		0.500		0.000		0.000	20.111	0.000
Remarks:												
(U) <u>Support</u>												
ASTE M&S	PR		1.454	0.450		0.450		0.000			2.354	
ASTE V&V - Mac B	PR		0.359	0.000		0.000		0.000			0.359	
ASTE - Misc	Various		36.304	0.423		0.068		0.000			36.795	
LEWK ACTD - MARSYSCOM	ACTD		0.000	5.195		4.200		0.000			9.395	
Subtotal Support			38.117	6.068		4.718		0.000		0.000	48.903	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
ASTE - 46TW	Various		0.897	0.747		0.178		0.000			1.822	
ASTE - Misc	Various		0.282	0.011		0.011		0.000			0.304	
46TW/AFFTC/ Support	Various		17.092								17.092	
AAR-47 Live Fire Test / Data Collection				0.594		0.000		0.000			0.594	
Comet Pod FDE Phase II			0.000	1.550		0.000		0.000			1.550	
Subtotal Test & Evaluation			18.271	2.902		0.189		0.000		0.000	21.362	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			75.477	9.492		5.407		0.000		0.000	90.376	0.000

Exhibit R-4, RDT&E Schedule Profile

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PROJECT NUMBER AND TITLE

3891 Advanced IR Counter Measures (AIRCМ)

RDT&E Schedule Profile Milestones

Task Name	2003				2004				2005				2006			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
ASTE DT&E – Transport				★												
ASTE OT&E - Transport				★												
ASTE Milestone III - Transport							☆									
AAR-47 Collection/Val Data (V-22.x)		★														
AAR-47 Modeling/Simulation		★														
AAR-47 Algorithm Development				★												
LEWK ACTD Retractable Wind Dev				★												
LEWK ACTD Veh. Jammer Down Sel				★												

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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) ASTE DT&E-Transport	4Q		
(U) ASTE OT&E -Transport	4Q		
(U) ASTE Milestone III - Transport		3Q	
(U) AAR-47 Collect/Validate Data (V22.x)	2Q		
(U) AAR-47 Modeling/Simulation	2Q		
(U) AAR-47 Algorithm Development	3Q		
(U) LEWK ACTD Retractable Wing development	3Q		
(U) LEWK ACTD Vehicle jammer downselect	3Q		

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604270F EW Development			PROJECT NUMBER AND TITLE 3945 TEWS Upgrade		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
3945 TEWS Upgrade	24.905	41.052	20.905	13.928	4.022	2.031	2.044	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

* This program is being restructured to accommodate the AF corporate decision to re-program funding and to re-evaluate the technology to upgrade the AN/ALQ-135 Tactical Electronic Warfare System (TEWS) on the F-15. Efforts continue to develop a FOTD in the joint Integrated Defensive Electronic Countermeasure (IDECM) Navy-led program.

(U) A. Mission Description and Budget Item Justification

This program develops and integrates an Air Force Fiber Optic Towed Decoy (FOTD) system. The FOTD portion of the budget provides Air Force participation/cost share in the Navy-led IDECM program that is jointly developing, integrating, flight testing, effectiveness testing, and conducting live fire testing using a FOTD. The Air Force will provide for its unique development, integration and testing requirements that are not covered by the Navy-led joint development effort. The Air Force also participates in a joint FOTD risk reduction effort with the Navy looking at alternate FOTDs and methods of deployment to develop an alternative launcher system (Reel-Out/Reel-In [RORI]), which reduces Life Cycle Cost.

The FOTD improves electronic countermeasure performance against Tier 1 threat systems, improves electronic warfare system performance against future missile threat systems. The Radio Frequency (RF) towed decoy is a countermeasure that increases survivability against monopulse, semi-active, and active RF missile threats during the terminal portion of an engagement. Boeing Study on going to finalize integration of FOTD on F-15.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Program	0.000	0.000	0.000
(U) F-15 (ALQ-135, FOTD, Flight Test)	15.165	22.552	0.000
(U) FOTD Integration, Live Fire Testing, and RORI	5.222	12.767	15.036
(U) EW Studies	0.000	2.000	2.133
(U) Mission and Test Support	4.518	3.733	3.736
(U) Total Cost	24.905	41.052	20.905

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</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) AF RDT&E									
(U) Other APPN	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) Aircraft Procurement, AF PE									
(U) 027442F, War Consumable (RF towed decoys)	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) Aircraft Procurement, AF PE	0.000	0.000	0.000	0.000	0.000	0.000	0.000		

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development	PROJECT NUMBER AND TITLE 3945 TEWS Upgrade
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(U) **C. Other Program Funding Summary (\$ in Millions)**

027442F, Initial Spares								
(U) Aircraft Procurement, AF PE 027442F, Mods (B-1B)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(U) Aircraft Procurement, AF PE 027442F, Mods (F-15)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(U) **D. Acquisition Strategy**

The acquisition strategy for IDECM RDT&E was competitive, cost-plus incentive fee / award fee.

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)				0604270F EW Development				3945 TEWS Upgrade				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u>	<u>Total</u>	<u>Target</u>
			<u>Prior to FY</u>	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	<u>Value of</u>
			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Contract</u>
			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) <u>Product Development</u>												
USAF IDECM: Development BAE	CPAF	BAE, Nashua, NH	47.226	0.080		0.000		0.000		Continuing	TBD	
Development Raytheon	CPIF	Raytheon, Goleta, CA	17.722	0.000		0.000		0.000		Continuing	TBD	
F-15 IDECM Integration- Boeing/LMT/Northrop	CPFF	McDonnell Douglas, St Louis, MO	34.128	15.165		22.552		0.000		Continuing	TBD	
USAF IDECM: Development BAE	CPFF	BAE, Nashua, NH	1.167	1.250		1.133		2.002		Continuing	TBD	
Raytheon Development	CPFF	Raytheon, Goleta, CA	0.000	2.660		3.390		2.815		Continuing	TBD	
IDECM Misc Development Contracts (IMPLC/Alt. Strategy/Flt Test Assets)	Various	Miscellaneous	3.191	0.000		2.244		2.754		Continuing	TBD	
Subtotal Product Development			103.434	19.155		29.319		7.571		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
ASC/AA - IDECM	Various		3.102	1.746		1.368		1.185		Continuing	TBD	
Subtotal Support			3.102	1.746		1.368		1.185		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
AFOTEC			1.600	0.000		0.000		0.000		Continuing	TBD	
Flight Test Support			0.156	0.000		0.010		0.000		Continuing	TBD	
Eglin Flight Test Support			0.845	2.094		2.045		2.215		Continuing	TBD	
Naval Research Lab (NRL)			0.000	0.678		0.310		0.336		Continuing	TBD	
Live Fire Test			0.000	1.232		6.000		7.465		Continuing	TBD	
EW Studies			0.000	0.000		2.000		2.133		Continuing	TBD	
Subtotal Test & Evaluation			2.601	4.004		10.365		12.149		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			109.137	24.905		41.052		20.905		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604270F EW Development

PROJECT NUMBER AND TITLE
3945 TEWS Upgrade

RDT&E Schedule Profile Milestones

Task Name	FY	2003					2004				2005				Qtr 1
		Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	
FOTD Thermal Survey				★											
FOTD Aero Demo (Thermal)						★									
DACP FY04 Efforts							☆								
Live Fire FY04 Efforts								☆							
FOTD Envelope Expansion #1										☆					
Reel-In/Reel-Out (RORI) Launcher Ktr Awd											☆				
DACP FY05 Efforts												☆			
RORI PDR													☆		
Live Fire FY05 Efforts														☆	
RORI CDR															☆
FOTD Envelope Expansion #2															☆

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development	PROJECT NUMBER AND TITLE 3945 TEWS Upgrade
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Schedule Profile			
(U) FOTD Thermal Survey	2-3Q		
(U) FOTD Aero Demonstration (Thermal)	4Q	2Q	
(U) Defense Acquisition Challenge Program FY04 Efforts		2-4Q	
(U) Live Fire FY04 Efforts		2-3Q	
(U) FOTD Envelope Expansion #1		4Q	1Q
(U) Reel-Out/Reel-In (RORI) Launcher Contract Award			1Q
(U) Defense Acquisition Challenge Program FY05 Efforts			1-4Q
(U) RORI PDR			2Q
(U) Live Fire FY05 Efforts			2-3Q
(U) RORI Critical Design Review			4Q
(U) FOTD Envelope Expansion #2			4Q

Exhibit R-2a, RDT&E Project Justification

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February 2004

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604270F EW Development			PROJECT NUMBER AND TITLE 4832 Precision Location and Identification (PLAID)		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
4832 Precision Location and Identification (PLAID)	21.588	19.600	17.953	1.496	0.000	0.000	0.000	0.000	52.966
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

(1) Precision Location and Identification (PLAID) will improve aircrew situational awareness by providing accurate ground emitter location and unambiguous identification. Threat systems can disrupt or negate operational missions, even without firing, by requiring aircrew reactions that affect mission objectives. Improved threat information from a modernized Radar Warning Receiver (RWR) will assist the aircrews in determining precise threat range/directions and provide option responses short of mission abort or violent aircraft maneuvering. Knowing threat location will help an aircrew respond 'real-time' to threats by providing accurate information to allow the aircrews to reroute around hostile areas. PLAID will, where feasible, utilize existing aircraft RWR antennas and wiring (Group A hardware). Some modifications may be necessary to optimize geolocation performance and minimize electromagnetic interference. PLAID development is currently focused on the ALR-69 RWR but PLAID technology can also be applied to other RWRs. Additional related enhancements to provide the capability to pass ground emitter target data (location, type, ID) to other systems are under consideration.

(2) In FY04 Congress added \$3.9M AF RDT&E funds to the EW Development PE 64270F for " Rapid Replacement of Mission Critical Logistics Electronics Components." (This work will be performed at Warner Robins AF Logistics Center in the same directorate as PLAID (WRALC/LS). The Air Force is therefore using the PLAID program office to track these funds in FY04.) This program will rapidly develop prototypes of replacement electronic components and subassemblies to combat obsolescence and vanishing vendor issues in Electronic Warfare systems.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Program Office Support	2.398	1.800	2.168
(U) System Engineering Support	1.350	1.200	0.743
(U) CORE SDD/Options/Award Fees	14.080	6.500	6.700
(U) SOF C-130 CORE Platform Integration - SOF C130 CORE/F16 CORE/F16 ACTD	1.890	4.700	5.413
(U) DT&E/OT&E - SOF C130 CORE/F16 CORE/F16 ACTD	1.870	1.500	2.929
(U) Rapid Replacement of Mission Critical Logistics Electronic Components		3.900	
(U) Total Cost	21.588	19.600	17.953

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Exhibit R-2a, RDT&E Project Justification

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February 2004

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development	PROJECT NUMBER AND TITLE 4832 Precision Location and Identification (PLAID)
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to Complete</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) DARPA Funding (ACTD/AT3)	5.800	1.300							
(U) OSD Funding (ACTD/AT3)		5.000	5.000						
(U) PE27442F Common ECM Equipment		0.000	6.243	14.146	11.990	11.560	11.721	Continuing	TBD
(U) PE41115F ALR-69 (RWR) AMC C-130 Airlift Squadrons.	15.635	19.465	0.000	47.314	33.717	36.704	36.392	Continuing	TBD
(U) PLAID procurement to commence in FY04									

(U) **D. Acquisition Strategy**

Acquisition was accomplished through full and open competition. The SDD contract was awarded to Raytheon Corporation in August 2001.

Program is based on 'Evolutionary Acquisition Strategy'.

- CORE SDD: SOF-130 DT/OT (addresses 3 of 4 KPPs)
- Option 1: F-16 DT/OT
- Option 2: Risk Reduction
- Option 3: F-16 Geo-Location and SEI (4th KPP)
- Option 4: SOF-130 Geo-Location & SEI (4th KPP)
- Options 5-10: Production
- Option 11: Advanced Tactical Targeting Technology (AT3)

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Exhibit R-3, RDT&E Project Cost Analysis

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February 2004

BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development	PROJECT NUMBER AND TITLE 4832 Precision Location and Identification (PLAID)
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
				<u>2003</u> <u>Cost</u>	<u>2003</u> <u>Award</u> <u>Date</u>	<u>2004</u> <u>Cost</u>	<u>2004</u> <u>Award</u> <u>Date</u>	<u>2005</u> <u>Cost</u>	<u>2005</u> <u>Award</u> <u>Date</u>			
(U) <u>Product Development</u>												
Raytheon CORE SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA		7.320	Dec-02	8.100		5.653		0.000	21.073	
Raytheon Option 1 SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA									0.000	
Raytheon Option 2 SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA									0.000	
Raytheon Option 3 SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA									0.000	
Raytheon Option 4 SDD + Fee	Full & Open Comp CPAF	Raytheon - Goleta CA		8.258		2.300					10.558	
Raytheon Option 11 AT3 + Fee	Sole Source - Raytheon	Raytheon - Goleta CA						1.200			1.200	
Survivability Enhancement	WR-ALC/LN for ALR-56C processor upgrade; ASC/AAN for Comet Pod									0.000	0.000	
Subtotal Product Development			0.000	15.578		10.400		6.853		0.000	32.831	0.000
Remarks:												
(U) <u>Support</u>												
Program Office	PR	Various Contractors		0.900		1.800		2.900			5.600	
Engineering	Various			1.350		1.200				0.000	2.550	
C-130 SPD	PR			1.890		2.800		2.800		0.000	7.490	
F-16 SPD	PR					1.900		2.500		0.000	4.400	
Subtotal Support			0.000	4.140		7.700		8.200		0.000	20.040	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												

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Exhibit R-3, RDT&E Project Cost Analysis							DATE February 2004		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)		0604270F EW Development			4832 Precision Location and Identification (PLAID)				
Det 1 46 OGS	PO	0.000	0.300	0.900	0.900	0.000	2.100		
IDAL	PO		0.510		0.900	0.000	1.410		
MISC	Various		1.060	0.600	0.200		1.860		
AATC	616				0.900		0.900		
Subtotal Test & Evaluation		0.000	1.870	1.500	2.900	0.000	6.270	0.000	
Remarks:									
(U) <u>Management</u>							0.000		
Subtotal Management		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:									
(U) Total Cost		0.000	21.588	19.600	17.953	0.000	59.141	0.000	

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

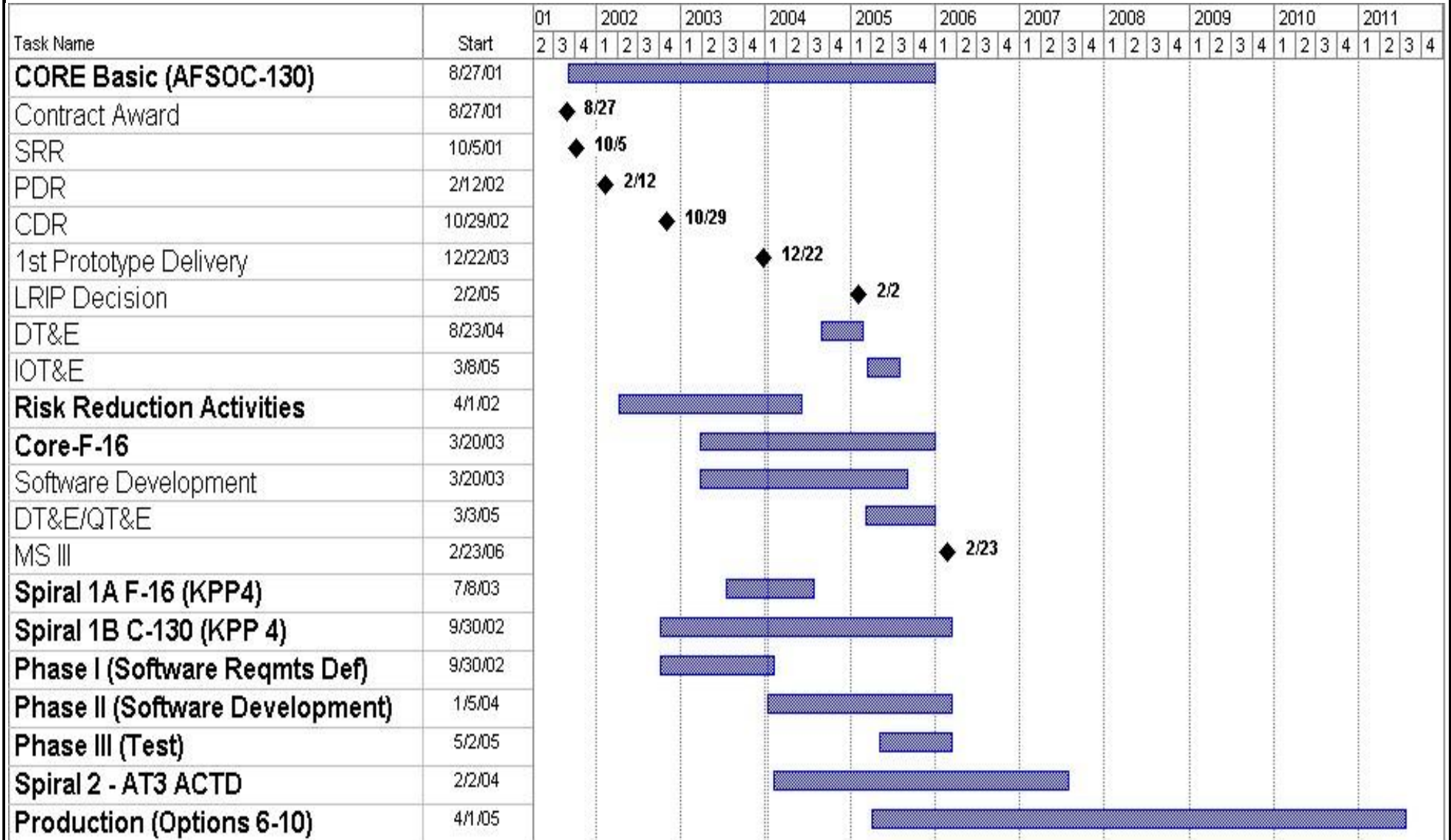
05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

4832 Precision Location and Identification (PLAID)



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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development	PROJECT NUMBER AND TITLE 4832 Precision Location and Identification (PLAID)
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) <u>Schedule Profile</u>			
(U) Developmental Testing and Evaluation		3Q	2Q
(U) Integration Operational Test and Evaluation			2-3Q

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)				0604270F EW Development			8462 Airborne Electronic Attack		
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
8462 Airborne Electronic Attack	9.300	26.745	99.535	181.692	225.256	214.931	146.396	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

In FY 2003, Project 658462, MALD, was changed to Airborne Electronic Attack (AEA) in order to accurately reflect the initiatives under this project.

(U) A. Mission Description and Budget Item Justification

This project develops critical electronic attack capabilities in support of Air Force and joint operations to include the Global Strike Concept of Operations (CONOPs). To date, the primary capability in this project is the Miniature Air Launched Decoy (MALD). MALD is a low-cost decoy to stimulate enemy integrated air defense systems (IADS) for detection, location, and both lethal and non-lethal suppression activities. A spiral to a Miniature Air Launched Jammer (MALD-J) is planned for stand-in jamming support to the suppression of enemy air defense mission. MALD entered the System Development and Demonstration (SDD) phase in FY03 with the Milestone B decision and a competitive SDD contract award.

Beginning in FY05, the USAF AEA initiative expands its scope to develop the other crucial stand-off and stand-in capabilities necessary to give the Joint Forces Air Component Commander (JFACC) a flexible array of tools to cover the entire threat spectrum. The majority of this work will be on the development of a support jamming capability for the B-52.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments / Planned Program	0.000	0.000	0.000
(U) Preparation for MALD SDD and SDD Contract Award	7.665		
(U) MALD SDD Contract		20.556	31.777
(U) MALD Program Office Support (Government)	0.578	2.377	2.108
(U) MALD B-52 Aircraft Integration	0.765	2.505	4.822
(U) MALD Mission and Test Support	0.223	1.107	1.824
(U) MALD F-16 Aircraft Integration	0.069	0.200	1.535
(U) AEA Program Office Support			2.500
(U) AEA System of systems engineering / architecture development			6.500
(U) Develop AEA receiver and jammer requirements and refine AEA System of systems CONOPs			8.500
(U) AEA receiver and jammer technology studies			4.000
(U) AEA receiver and jammer technology development			35.969
(U) Total Cost	9.300	26.745	99.535

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

PROJECT NUMBER AND TITLE

8462 Airborne Electronic Attack

(U) C. Other Program Funding Summary (\$ in Millions)(U) D. Acquisition Strategy

A full and open competition for MALD was held in FY03 resulting in award of a cost plus award fee contract to Raytheon.

A full and open competition for developing the stand-off jamming capability on the B-52 aircraft platform and contract award is contemplated during FY05.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604270F EW Development				PROJECT NUMBER AND TITLE 8462 Airborne Electronic Attack				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Product Development</u>												
MALD SDD ACTD	CPFF	Northrop Grumman - Ryan Aeronautical Center	40.074								40.074	
MALD SDD	CPAF	Raytheon Missile Systems, Tucson AZ		7.665	May-03	20.556		31.777		Continuing	TBD	102.033
MALD B-52 Aircraft Integration	MIPR	B-52 SPO		0.765	Oct-02	2.505	Oct-03	4.822			16.402	24.494
MALD F-16 Aircraft Integration	MIPR	F-16 SPO		0.069	Oct-02	0.200	Oct-03	1.535			3.665	5.469
AEA Development	TBD	TBD		0.000		0.000		48.469		Continuing	TBD	TBD
Subtotal Product Development			40.074	8.499		23.261		86.603		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Contractor Support to AAC/YAM	Various	Various		0.371		1.427		1.556			4.746	8.100
AEA Systems Engineering Support	TBD	TBD						6.500		Continuing	TBD	TBD
Subtotal Support			0.000	0.371		1.427		8.056		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
MALD Government Test Planning	Various	Various	5.173	0.223	Oct-02	1.107		1.824			11.729	20.056
AEA Test Planning										Continuing	TBD	TBD
Subtotal Test & Evaluation			5.173	0.223		1.107		1.824		Continuing	TBD	TBD
Remarks:	Element includes detailed planning, support data reduction and reports from such testing.											
(U) <u>Management</u>												
AAC/YAM (MALD)	Various	AAC, Eglin AFB FL	6.236	0.207		0.950		0.552			1.375	9.320
AEA Enterprise Team		ASC/AA, WPAFB OH						2.500		Continuing	TBD	TBD
Subtotal Management			6.236	0.207		0.950		3.052		Continuing	TBD	TBD
Remarks:	Element includes miscellaneous administrative costs incurred in the day-to-day operations by the program office. Costs include travel, office equipment, office supplies, printing, contract services, program management administration and communications expenses.											
(U) Total Cost			51.483	9.300		26.745		99.535		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604270F EW Development

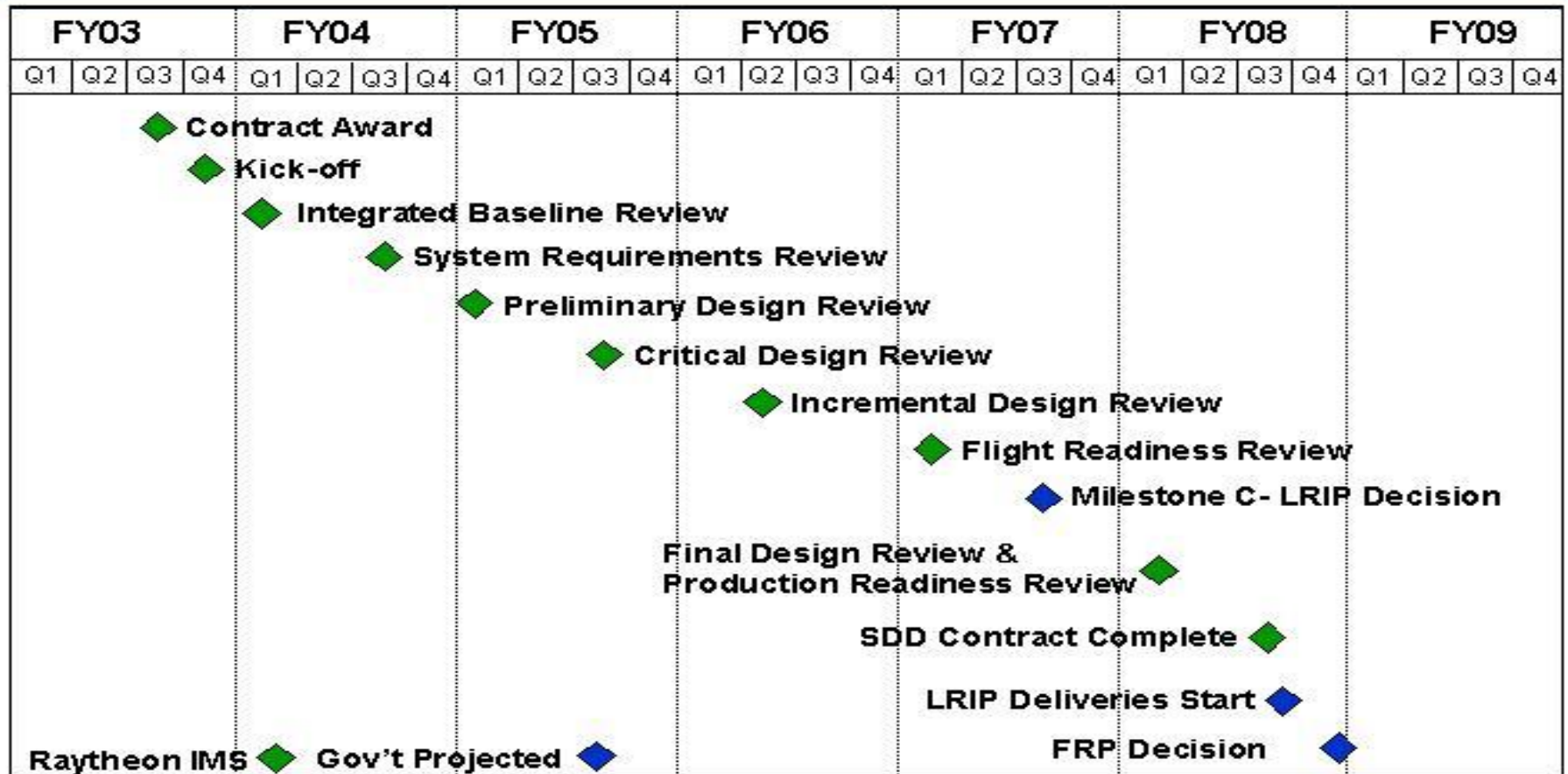
PROJECT NUMBER AND TITLE

8462 Airborne Electronic Attack



U.S. AIR FORCE

MALD Overview Schedule



Integrity - Service - Excellence

Exhibit R-4, RDT&E Schedule Profile

DATE
February 2004

BUDGET ACTIVITY
05 System Development and Demonstration (SDD)

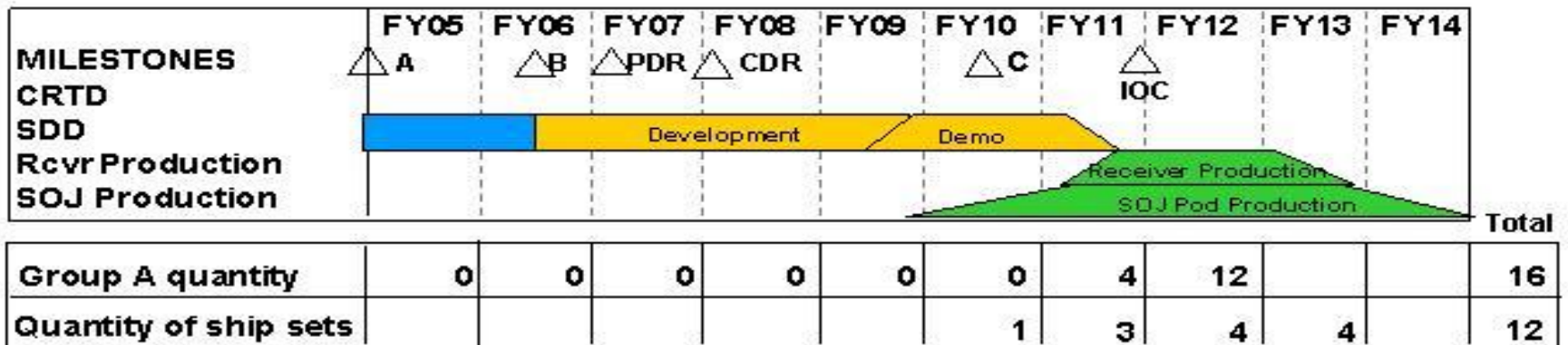
PE NUMBER AND TITLE
0604270F EW Development

PROJECT NUMBER AND TITLE
8462 Airborne Electronic Attack



U.S. AIR FORCE

AEA / B-52 SOJ Schedule



Notes:

CRTD- Concept Refinement & Technology Development; SDD-Systems Development & Demonstration

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2004
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604270F EW Development	PROJECT NUMBER AND TITLE 8462 Airborne Electronic Attack
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	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Schedule Profile			
(U) MALD Contract Award	3Q		
(U) MALD Integrated Baseline Review		1Q	
(U) MALD Preliminary Design Review			1Q
(U) MALD Critical Design Review			3-4Q
(U) AEA Initial Capabilities Document Written	4Q		
(U) AEA B-52 SOJ MS A			1Q