

UNCLASSIFIED

PE NUMBER: 0401134F

PE TITLE: Large Aircraft InfraRed Counter Measures (LAIRCM)

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)

Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	42.768	73.015	55.743	34.772	26.494	25.640	6.007	6.986	Continuing	TBD
4942 Large Aircraft Infrared Counter Measures (LAIRCM)	42.768	73.015	55.743	34.772	26.494	25.640	6.007	6.986	Continuing	TBD

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

The Large Aircraft Infrared Countermeasures (LAIRCM) system provides a significantly improved defensive capability for the AF's large aircraft to counter the IR Man-Portable Air Defense Systems (MANPADS) threat.

The current LAIRCM system [AN/AAQ-24V(13)] consists of ultra-violet (UV) missile warning sensors (MWS), a missile tracking system, small laser turret assemblies (SLTA) and processors to detect, track and counter incoming IR missiles. This system is fully automatic following power-up. The number of turrets per aircraft is determined by the size and IR signature of the aircraft. The multi-command Operational Requirements Document (ORD) -- LAIRCM ORD 314-92, was validated on 3 Aug 98. LAIRCM meets AMC's Nov 02 Urgent & Compelling Need to protect AMC's selected aircraft. The first two LAIRCM-equipped C-17s were delivered to AMC in May 03. The first LAIRCM-equipped C-130H completed IOT&E in Jul 04.

In the FY05 budget, the AF planned to equip 137 AMC aircraft with LAIRCM. This number has been revised to 444 AMC aircraft following completion of the "Study Report on Current and Future Threats to Mobility Aircraft" in Apr 04. This study was directed by the AF's FY06-11 Annual Planning & Program Guidance (APPG). Recent operations in Iraq and Afghanistan further validate the AF's need to increase the number of cargo aircraft, equipped with LAIRCM.

In FY03, LAIRCM's Phase II began development of a smaller laser turret assembly, referred to as the mini-turret. This smaller turret is programmed for production start in late FY06. Development of the Next Generation Missile Warning System (NexGen MWS) began in June 04 with production and incorporation into LAIRCM beginning in FY07. The C-17s will be retrofitted with this Phase II hardware when the equipment becomes available in FY06/FY07. The Phase I equipment removed from the C-17s, will be retrofitted onto AMC's C-130s. Development for the LAIRCM-equipped C-5B starts in FY05 with production starting in FY07. Development for the LAIRCM-equipped C-130J starts in FY07 with production starting in FY10.

Large Aircraft IR Countermeasures Program (LAIRCM) is in Budget Activity 7, Operational Systems Development as it is an electronic countermeasures systems upgrade to four existing weapons systems (C-17, C-130H, C-5B and C-130J).

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	45.946	73.684	68.391	20.926
(U) Current PBR/President's Budget	42.768	73.015	55.743	34.772
(U) Total Adjustments	-3.178	-0.669		
(U) Congressional Program Reductions		-0.669		
Congressional Rescissions	-0.390			
Congressional Increases				
Reprogrammings	-0.209			
SBIR/STTR Transfer	-2.579			

(U) **Significant Program Changes:**

In FY03, LAIRCM deliveries were accelerated by 12 months in response to an AMC Urgent and Compelling need for increased protection from the MANPADS threat. The first two LAIRCM-equipped C-17s were delivered to AMC in May 2003 under the LAIRCM Lite program. This accelerated Lite program took the first 12 production turrets and installed them only in the tailcones of the first 12 C-17s. The two forward-mounted turrets will be retrofitted to these aircraft when additional turret assemblies become available. The LAIRCM Lite configuration significantly improves the C-17's survivability in the near-term, but does not meet the system requirements.

Because of the success of this LAIRCM Lite Program, the AF will continue to configure C-17s in the Lite configuration (tail only turret) until early FY07 when the new mini-turret comes into production.

In FY04, Congress approved a reprogramming action of \$36M (procurement) that will fund an additional 18 C-17s with LAIRCM Lite.

In FY06 and FY07, the funds were rephased to better align with the work being performed. Also, the AF has determined that 444 AF airlift and tanker aircraft now need to be LAIRCM-equipped versus the previous requirement of 137 LAIRCM airlift and tanker aircraft.

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Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401134F Large Aircraft InfraRed
Counter Measures (LAIRCM)

PROJECT NUMBER AND TITLE

4942 Large Aircraft Infrared Counter
Measures (LAIRCM)

Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4942 Large Aircraft Infrared Counter Measures (LAIRCM)	42.768	73.015	55.743	34.772	26.494	25.640	6.007	6.986	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The Large Aircraft Infrared Countermeasures (LAIRCM) system provides a significantly improved defensive capability for the AF's large aircraft to counter the IR Man-Portable Air Defense Systems (MANPADS) threat.

The current LAIRCM system [AN/AAQ-24V(13)] consists of ultra-violet (UV) missile warning sensors (MWS), a missile tracking system, small laser turret assemblies (SLTA) and processors to detect, track and counter incoming IR missiles. This system is fully automatic following power-up. The number of turrets per aircraft is determined by the size and IR signature of the aircraft. The multi-command Operational Requirements Document (ORD) -- LAIRCM ORD 314-92, was validated on 3 Aug 98. LAIRCM meets AMC's Nov 02 Urgent & Compelling Need to protect AMC's selected aircraft. The first two LAIRCM-equipped C-17s were delivered to AMC in May 03. The first LAIRCM-equipped C-130H completed IOT&E in Jul 04.

In the FY05 budget, the AF planned to equip 137 AMC aircraft with LAIRCM. This number has been revised to 444 AMC aircraft following completion of the "Study Report on Current and Future Threats to Mobility Aircraft" in Apr 04. This study was directed by the AF's FY06-11 Annual Planning & Program Guidance (APPG). Recent operations in Iraq and Afghanistan further validate the AF's need to increase the number of cargo aircraft, equipped with LAIRCM.

In FY03, LAIRCM's Phase II began development of a smaller laser turret assembly, referred to as the mini-turret. This smaller turret is programmed for production start in late FY06. Development of the Next Generation Missile Warning System (NexGen MWS) began in June 04 with production and incorporation into LAIRCM beginning in FY07. The C-17s will be retrofitted with this Phase II hardware when the equipment becomes available in FY06/FY07. The Phase I equipment removed from the C-17s, will be retrofitted onto AMC's C-130s. Development for the LAIRCM-equipped C-5B starts in FY05 with production starting in FY07. Development for the LAIRCM-equipped C-130J starts in FY07 with production starting in FY10.

Large Aircraft IR Countermeasures Program (LAIRCM) is in Budget Activity 7, Operational Systems Development as it is an electronic countermeasures systems upgrade to four existing weapons systems (C-17, C-130H, C-5B and C-130J).

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Complete development of Basic LAIRCM system, support equipment, technical orders, etc.	15.779			
(U) Complete integration of the basic LAIRCM system onto the C-17 and C-130 platforms. Modify the first C-17 and C-130 begin OT&E.	2.058			
(U) Develop the mini-turret	7.010	15.200	4.100	
(U) Develop installation of LAIRCM on the C-5B		15.834	4.065	11.826
(U) Develop installation of LAIRCM on the C-130J				1.000
(U) Develop the Next Generation Missile Warning System (NexGen MWS)	0.300	28.306	26.996	6.685

Project 4942

R-1 Shopping List - Item No. 216-4 of 216-9

Exhibit R-2a (PE 0401134F)

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Exhibit R-2a, RDT&E Project Justification

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February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE			
07 Operational System Development	0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)	4942 Large Aircraft Infrared Counter Measures (LAIRCM)			

(U) Government testing and risk reduction	4.343	4.976	5.479	4.708
(U) Program office support (TDY, A&AS contract support, training, supplies and award fee.	13.278	8.699	15.103	10.553
(U) Total Cost	42.768	73.015	55.743	34.772

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) PE 41134F, C-17	28.990	39.713	84.463	195.492	166.550	203.254	31.230	11.004		760.696
(U) Procurement (BP1100)										
(U) PE 41134F, C-130	42.162	31.839	7.236	9.769	44.282	10.344	2.646	0.000		148.278
(U) Procurement (BP1100)										
(U) PE 41134F, C-5B	0.000	0.000	0.000	28.476	36.898	33.696	28.924	5.940		133.934
(U) Procurement (BP1100)										
(U) PE 41134F, C-130J	0.000	0.000	0.000	0.000	0.000	0.000	37.210	8.064		45.274
(U) Procurement (BP1100)										
(U) PE 54343F, C-130 (AFRC)					34.515	54.306	1.040	1.031		90.892
(U) Procurement (BP1100)										
(U) NGREA 0350 (ANG)	11.000									
(U) SOCOM Funding					26.100					26.100

(U) **D. Acquisition Strategy**

Integration of the LAIRCM subsystems is being accomplished by Northrop Grumman, who was awarded this CPAF contract on 28 Sep 01. Boeing integrates and installs LAIRCM on the C-17s on 18 Jan 02. The contract for integration of LAIRCM on the C-130 was awarded to Northrop Grumman as a modification to the current contract on 7 Jun 02. The contract to install LAIRCM on the C-5B aircraft will be awarded in FY05. The contract to install LAIRCM on the C-130J aircraft will be awarded in FY07. The NexGen Missile Warning System development contracts were awarded in Jun 04 to Northrop Grumman and Lockheed to develop competing NexGen MWS prototypes. In late FY06, an open competition will determine the NexGen MWS contractor, with production deliveries beginning in FY07.

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005		
BUDGET ACTIVITY 07 Operational System Development						PE NUMBER AND TITLE 0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)						PROJECT NUMBER AND TITLE 4942 Large Aircraft Infrared Counter Measures (LAIRCM)		
(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 Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Northrop Grumman	CPAF	Equipment manufacturer, Rolling Meadows, IL	48.382	20.616	Sep-01	0.000						0.000	68.998	TBD
Boeing	CPAF	LAIRCM installs; Long Beach, CA	31.414	0.819	Jan-02	0.000							32.233	TBD
Northrop Grumman	CPFF	NexGen MWS Development, Rolling Meadows, IL	0.000	0.150	Jun-04	14.306	Feb-05	13.996	Feb-05	0.000			28.452	TBD
Lockheed Martin	CPFF	NexGen MWS Development, Orlando, FL	0.000	0.150	Jun-04	14.000	Jun-04	13.000	Jun-04	3.904	Jun-04		31.054	TBD
TBD	TBD	Mini-turret Development, Rolling Meadows, IL		0.000		15.200	Jan-05	4.100	Jan-05	2.781	Jan-05		22.081	TBD
TBD	TBD	C-5B Development & Integration	0.000	0.000		15.165	Jun-05	1.417	Jun-05	15.672	Jun-05		32.254	TBD
TBD	TBD	C-130J Development & Integration	0.000	0.000		0.000		0.000		1.000	May-07	28.000	29.000	TBD
FY01 RDT&E under PE 41130F			44.883										44.883	
Subtotal Product Development			124.679	21.735		58.671		32.513		23.357		28.000	288.955	TBD
Remarks: TBD														
(U) <u>Support</u> ASC/GRI			14.377	13.278		8.868		8.550		6.207		26.507	77.787	TBD
AFRL			2.100	2.451		0.000		0.000		0.000			4.551	TBD
WRALC			0.000	1.560		0.500		0.500		0.500			3.060	TBD
Subtotal Support			16.477	17.289		9.368		9.050		6.707		26.507	85.398	TBD
Remarks:														
(U) <u>Test & Evaluation</u> Various Gov't Test Organizations	Various		13.714	3.744		4.976		14.180		4.708		10.000	51.322	TBD
Subtotal Test & Evaluation			13.714	3.744		4.976		14.180		4.708		10.000	51.322	TBD
Remarks:														
Project 4942														

R-1 Shopping List - Item No. 216-6 of 216-9

Exhibit R-3 (PE 0401134F)

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Exhibit R-3, RDT&E Project Cost Analysis

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PE NUMBER AND TITLE

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4942 Large Aircraft Infrared Counter
Measures (LAIRCM)(U) Management

Subtotal Management

0.000

0.000

0.000

0.000

0.000

0.000

0.000

0.000

0.000

Remarks:

(U) Total System Cost

(U) Total Cost

154.870

42.768

73.015

55.743

34.772

64.507

425.675

TBD

Remarks:

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY

07 Operational System Development

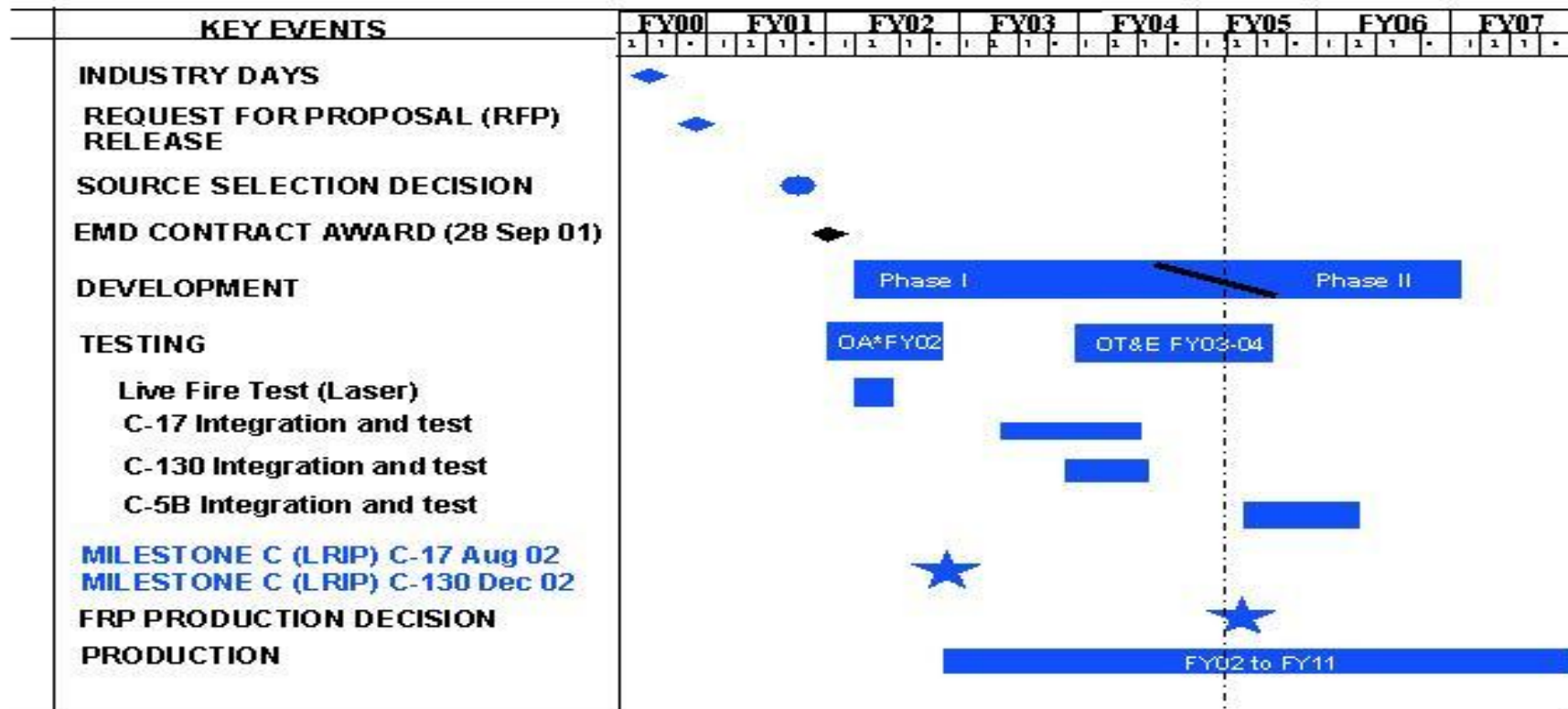
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LAIRCM



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Exhibit R-4a, RDT&E Schedule Detail

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4942 Large Aircraft Infrared Counter
Measures (LAIRCM)(U) Schedule ProfileFY 2004FY 2005FY 2006FY 2007

(U) C-17 Aircraft Integration (Jan 02 - Nov 03)

1Q

(U) C-17 #1 modification and OT&E (Feb 03 - Nov 03)

1Q

(U) C-130 Aircraft Integration (April 02 - Nov 03)

1Q

(U) C-130 # 1 Modification and OT&E (Oct 03 - May 04)

1-4Q

(U) Operational Assessment: (Jun - Jul 02)

1Q

(U) C-17 LRIP decision (Aug 02)

1Q

(U) C-130 LRIP decision (Dec 02)

1Q

(U) Phase II SDD (FY03-FY06)

1Q

(U) Full Rate Production decision

4Q

(U) Phase II SDD (FY04-FY06)

1Q

(U) C-5B Aircraft Integration (FY05-FY07)

2Q

(U) C-130J Aircraft Integration (FY07-FY09)

4Q