

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002		
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALs)						
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost		46,098	26,595	9,865	5,875	5,977	6,092	6,207	Continuing	TBD
2026	System Support	249	0	0	0	0	0	0	0	1,497
3587	Air Traffic Control Systems	45,849	26,595	9,865	5,875	5,977	6,092	6,207	Continuing	TBD
Quantity of RDT&E Articles		5	0	0	0	0	0	0	0	0
<p>(U) A. Mission Description The focus of this program is a comprehensive modernization of fixed and mobile Air Traffic Control and Landing Systems (ATCALs) that will bridge the gap between the current aging fleet of ground-based ATCALs and future space-based infrastructure. In particular, it is focused on developing systems that increase commonality and interoperability, reduce manpower requirements, reduce logistics supportability problems, and posture the service to move to space-based aerospace navigation infrastructure when that becomes feasible and affordable (sometime after 2010). Additionally, this program investigates and exploits emerging technologies in critical ATCALs support areas such as air traffic controller training and terminal instrument procedures development. This program complements other safety of flight and airspace access programs such as Global Air Traffic Management and Global Access, Navigation, and Safety. Project 2026 funds ongoing liaison and interagency cooperative studies, between the USAF Air Traffic Control and Landing Systems program office and various organizations to include other Services, the Federal Aviation Administration (FAA) and International Civil Aviation Organization (ICAO). Beginning in FY02, funding for Project 2026 will be contained in Project 3587. Project 3587 funds research and development of new air traffic control surveillance, positioning, and precision approach capabilities. This project funds the development of the Mobile Approach Control System (MACS) and Air Force Terminal Instrument Procedures-Replacement (AFTERPS-R).</p> <p>(U) B. Budget Activity Justification This program is in budget activity 7, Operational System Development, because it upgrades currently fielded weapon systems.</p>										

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BUDGET ACTIVITY		PE NUMBER AND TITLE			
07 - Operational System Development		0305114F Air Traffic Control/Approach/Landing System (ATCALs)			
(U) C. Program Change Summary (\$ in Thousands)					
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U)	Previous President's Budget	48,093	26,982	3,608	TBD
(U)	Appropriated Value	48,093	26,982		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions		-387		
	b. Small Business Innovative Research	-1,473			
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram	-81			
	e. Rescissions	-441			
(U)	Adjustments to Budget Years Since FY 2002 PBR			6,257	
(U)	Current Budget Submit/FY 2003 PBR	46,098	26,595	9,865	TBD
(U)	<u>Significant Program Changes:</u>				
	FY03: Funds in the amount of \$6.3M were realigned from the procurement appropriation in order to insure adequate test resources for the Precision Approach Radar (PAR).				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002		
BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALs)				PROJECT 2026		
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2026	System Support	249	0	0	0	0	0	0	0	1,497
Beginning in FY02, funding for system support will be contained in Project 3587 vice Project 2026.										
(U) <u>A. Mission Description</u>										
This continuing effort funds ongoing liaison and interagency cooperative studies and interoperability analyses between the USAF Air Traffic Control and Landing Systems (ATCALs) Program Office and various organizations which include the other services, the Federal Aviation Administration (FAA), and the International Civil Aviation Organization (ICAO). This project provides Air Force mission support for the ATCALs programs including several joint efforts with the FAA. RDT&E funds are used to resolve or minimize technical interface problems associated with interoperability between existing or planned DoD/FAA ATCALs equipment and capabilities. This project ensures Air Force air traffic systems work collaboratively to provide safe and efficient Air Traffic Control services within the National Airspace System and in host nations overseas.										
(U) <u>FY 2001 (\$ in Thousands)</u>										
(U) \$89 Support for all ATCALs projects										
(U) \$111 Continue national and international air traffic system interoperability and interface evaluations										
(U) \$49 Perform strategic planning for ATCALs deployment										
(U) \$249 Total										
(U) <u>FY 2002 (\$ in Thousands)</u>										
(U) \$0 No Activity										
(U) \$0 Total										
(U) <u>FY 2003 (\$ in Thousands)</u>										
(U) \$0 No Activity										
(U) \$0 Total										
(U) <u>B. Project Change Summary</u>										
Beyond FY01, funding consolidated within PE 0305114F, Project 3587.										
Project 2026				Page 3 of 11 Pages				Exhibit R-2A (PE 0305114F)		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
07 - Operational System Development				0305114F Air Traffic Control/Approach/Landing System (ATCALs)				2026		
(U) C. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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									
	N/A									
(U) D. Acquisition Strategy										
Engineering Manufacturing Development, Fixed Price Incentive Fee (FPIF), No Non-Developmental Items (NDI)										
(U) E. Schedule Profile										
				<u>FY 2001</u>			<u>FY 2002</u>		<u>FY 2003</u>	
			1	2	3	4	1	2	3	4
(U)	Conduct Precision Landing Studies									
	* Denotes completed activity									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
07 - Operational System Development					0305114F Air Traffic Control/Approach/Landing System (ATCALs)			2026			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2001</u>		<u>FY 2002</u>			<u>FY 2003</u>	
(U)	System Engineering				89		0			0	
(U)	Interface evaluations and architecture definitions				111		0			0	
(U)	Program Management Support				39		0			0	
(U)	Travel				10		0			0	
(U)	Total				249		0			0	
(U) B. 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 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	N/A										
	<u>Support and Management Organizations</u>										
	Various	Multiple	Multiple	N/A	N/A	1,248	249	0	0	0	1,497
	<u>Test and Evaluation Organizations</u>										
	N/A										
(U) 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 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	N/A										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 2002					
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT					
07 - Operational System Development	0305114F Air Traffic Control/Approach/Landing System (ATCALs)	2026					
<p>(U) <u>Government Furnished Property Continued:</u></p> <p><u>Support and Management Property</u> N/A</p> <p><u>Test and Evaluation Property</u> N/A</p>							
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>							
Subtotal Product Development							
Subtotal Support and Management		1,248	249	0	0	0	1,497
Subtotal Test and Evaluation							
Total Project		1,248	249	0	0	0	1,497

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 07 - Operational System Development	PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALs)	PROJECT 3587
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3587 Air Traffic Control Systems	45,849	26,595	9,865	5,875	5,977	6,092	6,207	Continuing	TBD

(U) **A. Mission Description**
 This project funds research and development of new air traffic control surveillance, positioning, and precision approach capabilities (including the Mobile Approach Control System (MACS) which replaces non-standard, unsupportable, large footprint mobile radar approach systems with a common, easily-transportable system for both the Air National Guard and USAF). This project funds the development of a replacement system for automated development of terminal instrument procedures (the precisely-measured information that tell pilots how to fly during final approach to avoid obstacles). This project is also key to ensuring Air Force Air Traffic Systems work collaboratively to safely and efficiently provide ATC services within the National Airspace System (NAS) and in host nations overseas. For example, over the next 15 years, the FAA plans to implement new or improved capabilities into the NAS in an evolutionary manner. FY 2003-2007 will concentrate on deployment of the next generation of communications, navigation, and surveillance technologies and the automation upgrades necessary to accommodate new CNS capabilities. FY 2008-2015 will see additional capabilities being added to enable the concept of Free Flight throughout the NAS. Since the Air Force must provide the same level of air traffic service to the military and flying public, funds are required to conduct interoperability and architecture studies and analyses as necessary on a wide range of aviation concepts. This effort complements similar activities associated with other safety of flight and airspace access programs such as Global Air Traffic Management that predominately focus on aircraft issues.

- (U) **FY 2001 (\$ in Thousands)**
- (U) \$27,115 Continue MACS Air Surveillance Radar and Operation Shelter Development
- (U) \$16,515 Continue MACS Precision Approach Radar Development
- (U) \$664 Continue the support of field activities to ensure USAF ATC interoperability with FAA and NATO
- (U) \$1,555 Continue development of Air Force Terminal Instrument Procedures System
- (U) \$45,849 Total

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BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALs)			PROJECT 3587			
(U) <u>A. Mission Description Continued</u>										
(U) <u>FY 2002 (\$ in Thousands)</u>										
(U)	\$8,849	Continue MACS Air Surveillance Radar and Operation Shelter Development								
(U)	\$15,698	Continue MACS Precision Approach Radar Development								
(U)	\$799	Complete development of Air Force Terminal Instrument Procedures System								
(U)	\$1,249	Continue support for all ATCALs Projects								
(U)	\$26,595	Total								
(U) <u>FY 2003 (\$ in Thousands)</u>										
(U)	\$4,189	Complete MACS Air Surveillance Radar and Operation Shelter Development								
(U)	\$4,449	Continue MACS Precision Approach Radar Development								
(U)	\$1,227	Continue support for all ATCALs Projects								
(U)	\$9,865	Total								
(U) <u>B. Project Change Summary</u>										
FY03: Funds in the amount of \$6.3M were realigned from the procurement appropriation in order to insure adequate test resources for the Precision Approach Radar (PAR).										
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>										
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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)	OPAF - BA 3 (PE 305114F)	7,979	4,698	52,387	83,346	84,571	11,652	1,490	Continuing	TBD
	Weapon System Code 833010									
(U)	OPAF, BA 3, (PE 305137F)	55,340	71,930	55,934	44,120	41,258	57,807	64,976	Continuing	TBD
	Weapon System Code 833020									
(U)	OPAF, BA 5, (PE 305137F)	4,907	5,258	4,379	3,756	3,997	4,137	4,220	Continuing	TBD
	Weapon System Code									
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BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALs)				PROJECT 3587		
(U) C. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</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>		
86190A Initial Spares										
(U) MILCON, AF	0	0	0	0	0	0	0	0	0	
(U) D. Acquisition Strategy										
Engineering Manufacturing Development, Fixed Price Incentive Fee (FPIF), No Non-Developmental Items (NDI)										
(U) E. Schedule Profile										
				<u>FY 2001</u>		<u>FY 2002</u>			<u>FY 2003</u>	
			1	2	3	4	1	2	3	4
(U) Contract Milestones										
(U) PAR Contract Award								*		
(U) ASR/OPS Contract Award			*							
(U) ASR/OPS Operational Testing									X	
(U) AFTERPS-R Contract Award					*					
* Denotes completed activity										
X Denotes scheduled activity										
Project 3587			Page 9 of 11 Pages				Exhibit R-2A (PE 0305114F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
07 - Operational System Development					0305114F Air Traffic Control/Approach/Landing System (ATCALs)			3587		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2001</u>		<u>FY 2002</u>			<u>FY 2003</u>
(U)	MACS Air Surveillance Radar (ASR) and Operation Shelter development				27,115		8,849			4,189
(U)	MACS Precision Approach Radar (PAR) Development				16,515		15,698			4,449
(U)	Studies/field/integration activities to support on-going Air Traffic Control				499		1,074			1,102
(U)	AFTERPS-R development				1,555		799			0
(U)	Government Program Management Support and Travel for ATCALs activities				165		175			125
(U)	Total				45,849		26,595			9,865
(U) B. 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 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
AFTERPS-R - Canadian Commercial Corp	FPAF	Apr 01	N/A	N/A	850	1,555	799		Continuing	TBD
MACS PAR Development - Lockheed Martin	FPIF	Jun 00	N/A	N/A	1,519	7,407			Continuing	TBD
ASR and Operational Shelter Development - ITT Gilfillan	FPAF	Oct 00	N/A	N/A	0	21,840	8,471	3,687	Continuing	TBD
MITRE Corp	FFP	Oct 00	N/A	N/A	427	980	980	775	Continuing	TBD
Horizons Technology Inc.	FFP	Feb 99	N/A	N/A	1,427	1,818	1,067	1,011	Continuing	TBD
MCR Federal Inc.	FFP	Apr 99	N/A	N/A	550	200	200	125	Continuing	TBD
Raytheon Corp	FFP	July 96	N/A	N/A	668					668
Various TBD Contract	Multiple	Multiple	Continuing	Continuing	1,941	249	134	58	Continuing	TBD
Project 3587					Page 10 of 11 Pages			Exhibit R-3 (PE 0305114F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
07 - Operational System Development					0305114F Air Traffic Control/Approach/Landing System (ATCALs)			3587		
(U) Performing Organizations Continued:										
<u>Product Development Organizations</u>										
MACS Precision Approach	FFP	Jan 02	N/A	N/A	11,485	14,619	3,904			30,008
Radar (PAR) Development										
<u>Support and Management Organizations</u>										
Various	Multiple	Multiple	Continuing	Continuing	523	165	175	155	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
46th Test Wing, Eglin AFB	PO	Multiple	N/A	N/A	627	150	150	150	Continuing	TBD
FL										
(U) Government Furnished Property:										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
N/A										
<u>Support and Management Property</u>										
N/A										
<u>Test and Evaluation Property</u>										
N/A										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					7,382	45,534	26,270	9,560	TBD	TBD
Subtotal Support and Management					523	165	175	155	TBD	TBD
Subtotal Test and Evaluation					627	150	150	150	TBD	TBD
Total Project					8,532	45,849	26,595	9,865	TBD	TBD