

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>	DATE <b>February 2002</b>
--	------------------------------

<b>BUDGET ACTIVITY</b> <b>04 - Demonstration and Validation</b>	<b>PE NUMBER AND TITLE</b> <b>0603742F Combat Identification Technology</b>	<b>PROJECT</b> <b>2597</b>
--	--	-------------------------------

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
2597 Noncooperative Identification Subsystems	10,497	11,409	12,434	16,955	19,935	20,332	20,739	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

**(U) A. Mission Description**  
 U.S. Combat Air Forces have a critical requirement to positively identify enemy, friendly, and neutral aircraft and battlefield equipment. Multiple other Joint MNS, Air Force ORDs, and NATO requirements documents also state CID operational needs. High confidence & high probability of ID, all weather & day/night operational needs as well as timely and reliable CID will reduce fratricide, improve combat effectiveness, and enable battlespace commanders to effectively manage and control their forces.

The Combat ID Technology program investigates (studies & analyses), develops, demonstrates, and transitions (to EMD) promising target identification technologies. These technologies include both cooperative and non-cooperative techniques that improve our ability to positively identify ground and air targets (i.e. Air/Space-to-Surface, Surface-to-Surface, Surface-to-Air/Space and, Air/Space-to-Air CID).

Examples of promising Air-to-Surface technologies include electro-optical (EO) systems that significantly increase ID ranges, exploitation of vibration signatures to increase probability and confidence of ground target ID, tagging and, maturation of algorithms to support Automatic Target Cueing and Automatic Target Recognition.

Examples of Air-to-Air technologies include High Range Resolution (HRR) techniques to increase ID ranges as well as confidence and, improvements to the Mark XII system (specifically, implementation of mode V to enable robust, secure Identification Friend or Foe (IFF)) and tagging.

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

**(U) \$2,494** Performed synthetic target database development in conjunction with the National Air Intelligence Center (NAIC). Conducted HRR algorithm maturation development & demonstration activities, and develop risk assessment and risk mitigation efforts to increase database fidelity.

**(U) \$461** Continued development and demonstration of other promising air-to-ground and air-to-air identification techniques for reduced battlefield fratricide and enhanced mission performance, including the Enhanced Recognition and Sensing Laser Radar (ERASER) program (EO based).

**(U) \$5,663** Continued Laser Vision Phase I to demonstrate 2-D eyesafe laser imaging (ERASER) technology on an operational fighter targeting pod.

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		February 2002
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
<b>04 - Demonstration and Validation</b>	<b>0603742F Combat Identification Technology</b>	<b>2597</b>
<b>(U) <u>A. Mission Description Continued</u></b>		
<b>(U) <u>FY 2001 (\$ in Thousands) Continued</u></b>		
(U) \$320	Funded required AIMS Program Office support of configuration control of Mark XII systems and next generation IFF equipment integration with current IFF (Mode IV) capabilities.	
(U) \$1,042	Provided for CID Integrated Management Team and other engineering support for integration and management of Air Force CID programs.	
(U) \$517	Conducted CID related studies/demos, including those directed by the Joint Staff and OSD, to define higher fidelity requirements, wring out Tactics Techniques, and Procedures (TTPs) as they apply to new technologies, and otherwise analyze ways to increase warfighter's CID capabilities.	
(U) \$10,497	Total	
<b>(U) <u>FY 2002 (\$ in Thousands)</u></b>		
(U) \$3,141	Continue the HRR synthetic target database development in conjunction with NAIC. Implement risk reduction measures to increase the fidelity of the HRR database and prepare to transition database management/maintenance from the lab environment to a SPO. This transition is planned to occur at the end of FY03.	
(U) \$6,111	Continue development and demonstration of promising air-to-ground and air-to-air identification techniques for reduced battlefield fratricide and enhanced mission performance. Transition program candidates include the continued development and integration of ERASER/Laser Vision, begin baselining associated EO/ATC (Automatic Target Cueing)/ATR (Automatic Target Recognition) capability, begin Multi Vision military utility assessments/trade study to define a transition roadmap for the Joint Airborne Night Navigation and Attack (JOANNA) and related technologies, and continue to mature/harden camera technologies for flight environments. Potential other candidates could include the Air-to-Ground Imaging (AGRI) technology.	
(U) \$777	Fund AIMS Program Office support of Mark XII systems to include next generation IFF equipment integration, including Mode V documentation and individual IFF system/box certification.	
(U) \$825	Provide for CID Integrated Management Team and other engineering support for integration and management of Air Force CID programs.	
(U) \$555	Conduct CID related studies/demos and conferences. Studies/demos will include those directed by the Joint Staff and OSD, to define higher fidelity requirements, wring out Tactics Techniques, and Procedures (TTPs) as they apply to new technologies, and otherwise analyze ways to increase warfighter's CID capabilities.	
(U) \$11,409	Total	
Project 2597	Page 2 of 7 Pages	Exhibit R-2 (PE 0603742F)

**UNCLASSIFIED**

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>		<b>DATE</b> February 2002			
<b>BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT</b>			
<b>04 - Demonstration and Validation</b>	<b>0603742F Combat Identification Technology</b>	<b>2597</b>			
<b>(U) <u>A. Mission Description Continued</u></b>					
<b>(U) <u>FY 2003 (\$ in Thousands)</u></b>					
(U) \$3,348	Continue the HRR synthetic target database development in conjunction with NAIC. Implement risk reduction to increase the fidelity of the HRR database and complete the transition of database management/maintenance from the lab environment to a SPO.				
(U) \$6,921	Continue development and demonstration of promising air-to-ground and air-to-air identification techniques for reduced battlefield fratricide and enhanced mission performance. Transition program candidates including the continued development and integration of ERASER/Laser Vision, continue baselining associated EO/ATC (Automatic Target Recognition) capability, continue Multi-Vision military utility assessments/trade study to define a transition roadmap for the Joint Airborne Night Navigation and Attack (JOANNA) and related technologies, and continue to mature/harden camera technologies for flight environments. Potential other candidates could include the Air-to-Ground Imaging (AGRI) and vibration exploitation technologies.				
(U) \$783	Fund AIMS Program Office support of Mark XII systems to include next generation IFF equipment integration, including Mode V documentation and individual IFF system/box certification.				
(U) \$861	Provides for the CID Integrated Management Team and other engineering support necessary for management of CID efforts.				
(U) \$521	Conduct CID related studies/demos and conferences. Studies/demos will include those directed by the Joint Staff and OSD, to define higher fidelity requirements, wring out Tactics Techniques, and Procedures (TTPs) as they apply to new technologies, and otherwise analyze ways to increase warfighter's CID capabilities.				
(U) \$12,434	Total				
<b>(U) <u>B. Budget Activity Justification</u></b>					
This program is in Budget Activity 4 - The PE includes advanced technology demonstrations that help transition technologies from laboratory to operational use.					
<b>(U) <u>C. Program Change Summary (\$ in Thousands)</u></b>					
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U) Previous President's Budget		10,933	11,523	12,464	
(U) Appropriated Value		10,933	11,523		
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions			-109		
b. Small Business Innovative Research		-335			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogram					
Project 2597	Page 3 of 7 Pages	Exhibit R-2 (PE 0603742F)			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002		
BUDGET ACTIVITY <b>04 - Demonstration and Validation</b>					PE NUMBER AND TITLE <b>0603742F Combat Identification Technology</b>					PROJECT <b>2597</b>		
<b>(U) C. Program Change Summary (\$ in Thousands) Continued</b>												
					<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>Total Cost</u>	
	e. Rescissions											
					-101		-5					
(U)	Adjustments to Budget Years Since FY 2002 PBR											
									-30			
(U)	Current Budget Submit/FY 2003 PBR											
					10,497		11,409		12,434		TBD	
(U)	<u>Significant Program Changes:</u>											
	No significant program changes.											
<b>(U) D. Other Program Funding Summary (\$ in Thousands)</b>												
		<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)	None	0	0	0	0	0			0		0	
<b>(U) E. Acquisition Strategy</b>												
	The High Range Resolution (HRR) database development program was awarded under a competitive bid process. Other combat identification efforts in project 2597 focus on developing and demonstrating the most promising Air-to-Ground Combat ID techniques and were contracted for under a competitive Request For Proposal (RFP) process. Laser Vision was awarded utilizing Other Transaction Agreement (OTA)s, which utilize the same competitive process of Request for Proposal (RFP), proposal submittal and negotiation of costs prior to award. FY03 activities are a continuation of FY02 efforts.											
<b>(U) F. Schedule Profile</b>												
					<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>	
					1	2	3	4	1	2	3	4
(U)	1. (U) HRR Platform Suite Efforts											
(U)	DT&E Completion											
					*							
(U)	OT&E Completion											
										*		
(U)	2. (U) HRR Classifier Dev/Qual											
(U)	Denied Target Process Validation											
									X			
(U)	Threat Target Build											
						*	*	X	X	X	X	X
(U)	AFRL Target Build											
						*	*	X	X	X	X	X
(U)	Stores Configuration Assessment											
(U)	Data Collection Complete											
								X				
Project 2597					Page 4 of 7 Pages				Exhibit R-2 (PE 0603742F)			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
<b>04 - Demonstration and Validation</b>					<b>0603742F Combat Identification Technology</b>					<b>2597</b>			
<b>(U) <u>F. Schedule Profile Continued</u></b>													
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	Synthesis Production						X						
(U)	Unknown Target Process												
(U)	Initial Assessment			*									
(U)	Transition Effort					*	X	X	X	X	X	X	X
(U)	3. (U) ERASER (technology development)												
(U)	Flight Demo of 1.06 micron system	*											
(U)	4. (U) LASER VISION (flt test of ERASER technology)												
(U)	System Integration & Ground Tests	*											
(U)	Flight Demo with Targeting Pod(s) & Analysis	*	*	*	*								
(U)	Start EO/ATC/ATR baselining effort												X
(U)	Integration Activity					*	X	X	X	X	X	X	X
(U)	Camera Development		*	*	*	*	X	X	X	X	X	X	
(U)	5. (U) MULTI VISION TRADE STUDY						X	X	X	X			
	* denotes completed events												
	X denotes planned events												

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
<b>04 - Demonstration and Validation</b>					<b>0603742F Combat Identification Technology</b>			<b>2597</b>			
<b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Analysis/Modeling and Simulation, Studies, Plans and Reports					857		555		521	
(U)	Data Synthesis, Algorithm Development, Database Support					2,494		3,141		3,348	
(U)	Hardware/Software and Prime Mission Product Development					3,083		6,111		6,921	
(U)	IFF Equip Config Control, Certification & Integration Support					320		777		783	
(U)	CID Training, Travel, & Operations					1,734		825		861	
(U)	Flight Test					2,009		0		0	
(U)	Total					10,497		11,409		12,434	
<b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b>											
<b>(U) Performing Organizations:</b>											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</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>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	Raytheon Co, El Segundo CA	CPFF	Nov 98	12,625	12,625	0	900	852	0	Continuing	TBD
	Veridian (Veda) Dayton, OH	CPFF	Aug 98	13,000	13,000	0	400	198	0	Continuing	TBD
	Simulation Support, Inc.	CP	May 99	330	330	0	0	0	0	330	330
	National Air Intel Center	AF616	Annually	3,329	3,329	3,329	0	0	0	0	3,329
	Northrop Grumman Corp	CPFF	Aug 93	2,270	2,270	1,956	0	0	0	Continuing	TBD
	ERASER-Raytheon, Plano TX	CPFF	Dec 97	5,532	5,532	1	461	990	0	Continuing	TBD
	Raytheon Co, El Segundo	OTA	Mar 00	1,100	1,100	0	150	1,319	725	Continuing	TBD
	Lockheed Martin, Orlando	OTA	Mar 00	1,100	1,100	0	150	1,320	0	Continuing	TBD
	Northrup Grumman, Rolling Meadows, IL	OTA	Mar 00	1,100	1,100	0	150	1,320	0	Continuing	TBD
	Demaco	CPFF	Aug 94	9,004	9,004	6,604	0	0	0	0	6,604
Project 2597											

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
04 - Demonstration and Validation										February 2002
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT	
04 - Demonstration and Validation				0603742F Combat Identification Technology					2597	
<b>(U) Performing Organizations Continued:</b>										
<u>Product Development Organizations</u>										
SAIC (Demaco, Inc)	CPFF	May 99	2,210	2,210	0	800	495	0	Continuing	TBD
Cyberdynamics	CPFF	May 99	2,112	2,112	0	10	0	0	Continuing	TBD
AIMS Program Office	MIPR	Annual	N/A	N/A	634	320	723	772	Continuing	TBD
Wright Laboratory (Camera & ATR development)	MIPR	Jan 01	N/A	N/A	0	2,000	1,791	3,731	Continuing	TBD
Wright Laboratory (LV)	MIPR	N/A	N/A	N/A	0	1,353	0	2,494	Continuing	TBD
<u>Support and Management Organizations</u>										
USAF Combat ID IMT and Engineering Support	Various	N/A	N/A	N/A	2,850	1,734	834	1,374	Continuing	TBD
Wright Laboratory (HRR)	MIPR	N/A	4,000	4,000	2,332	60	70	3,338	Continuing	TBD
FT Belvoir	MIPR	N/A	N/A	N/A	0	0	0	0	0	0
<u>Test and Evaluation Organizations</u>										
3246th Test Wing, Eglin AFB, FL	Mixed, CPF,	N/A	3,769	3,769	2,319	1,770	1,497	0	Continuing	TBD
544th Range Group, Nellis AFB, NV										
412 Test Wing, Edwards AFB	MIPR	N/A	1,605	1,605	0	239	0	0	Continuing	TBD
					<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>
Subtotals										
Subtotal Product Development					12,524	6,694	9,008	7,722	TBD	TBD
Subtotal Support and Management					5,182	1,794	904	4,712	TBD	TBD
Subtotal Test and Evaluation					2,319	2,009	1,497	0	TBD	TBD
Total Project					20,025	10,497	11,409	12,434	TBD	TBD