

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2004	
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603790F NATO Cooperative R&D					
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	4.070	3.855	3.930	3.952	3.972	4.096	4.158	0.000	0.000
NATO Nato Coop R&D	4.070	3.855	3.930	3.952	3.972	4.096	4.158	0.000	0.000

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

These funds will be used to help implement international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states, major non-NATO allies (Argentina, Australia, Egypt, Israel, Japan, Jordan, and Rep. of Korea (South Korea), and friendly foreign countries (Austria, Brazil, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support.

This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	4.355	3.888	3.930
(U) Current PBR/President's Budget	4.070	3.855	3.930
(U) Total Adjustments	-0.285	-0.033	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.045	-0.033	
Congressional Increases			
Reprogrammings	-0.092		
SBIR/STTR Transfer	-0.148		
(U) <u>Significant Program Changes:</u>			
Change Summary Explanation: N/A			

Exhibit R-2a, RDT&E Project Justification

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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
NATO Nato Coop R&D	4.070	3.855	3.930	3.952	3.972	4.096	4.158	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

These funds will be used to help implement international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states, major non-NATO allies (Argentina, Australia, Egypt, Israel, Japan, Jordan, and Rep. of Korea (South Korea), and friendly foreign countries (Austria, Brazil, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support.

This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) ATLANTIC PAW (AFRL/ France, Germany, UK) - Ongoing cooperative project to develop a common waveform syn allowing for joint allied communications that will be demonstrated on programmable radio systems in each of the participating nations. In FY03, the waveform interpreter design and the initial specifications of the waveform language will be completed, and rehosted on the US development equipment. The development environment will be completed and used for an international demonstration.	0.358		
(U) Cooperative Research and Development Efforts in Imaging Spectrometer Development (AEDC/ Canada) - Ongoing cooperative project to pool the spatial and spectral advances of both the US and Canada to produce a hyperspectral infrared (IR) imaging spectrometer. This high-resolution sensor system will be capable of characterizing signatures of rockets and aircraft for drug interdiction and for identifying trace quantities of a broad spectrum of gases in the environment. In FY03, work will continue to enhance the data acquisition and viewing software, instrument ruggedization will continue, and field testing will begin.	0.250		
(U) Distributed Mission Training (DMT) and Virtual Air Environment (VAE) Technologies (AFRL/ Australia) - Ongoing cooperative project to develop DMT and VAE technologies that will enhance allied simulator based training of US and Australian fighter aircrews and demonstrate proof of concept. DMT refers to a shared training environment comprised of live, virtual, and constructive simulations allowing warfighters to train individually or collectively at all levels of war.	0.250		

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<p>The Australian VAE program will establish a training capability for the Air Defence System using networked simulate and constructive forces. The cooperative project will merge efforts being conducted under these complementary programs. In FY03, the project will continue efforts to (1) develop Australian F-18 multi-task trainers, (2) conduct visual perception and engineering research efforts to specify design requirements for ultra-high resolution visuals for DMT flight simulators, and (3) initiate collaborative long-haul networking and constructive forces development activities.</p>			
(U) Engine Component Life Extension (AFRL/ Australia) - Ongoing cooperative project to develop life extension techniques and strategies that can be applied to advanced military engines. The engines involved include the US Air Force F100, -220, -229 and F101 and Australia's TF30, F404 and T700. Much of the technology will be generic and flow from one engine to another. In FY03, development of NDE techniques for characterization of residual stress profiles will conclude; activities to address the shortfalls in life prediction capabilities will conclude, and; the final report will be written.		0.400	
(U) Flight Test Demonstration of Miniature Munitions Release from Internal Weapons Bay Phase 2 (AFRL/ Australia) - Planned cooperative project to characterize the separation of asymmetric, less stable miniature munitions shapes from internal weapons bays at operational velocities. The Royal Australian Air Force (RAAF) F-111G is the only available operational fighter/bomber, with an internal bay, capable of dropping internally carried munitions at subsonic and supersonic velocities. Additionally, this project will examine emerging technologies for moderating the weapon separation aeroacoustic environment and collecting telemetry through miniature electronic systems rather than high-speed cameras. In FY03, the project team will conduct test planning and preparation, execute the testing, perform analyses, and document the results.		0.733	
(U) Integrated Tactical Aircraft Control (ITAC) Program (AFRL/France) - Ongoing cooperative project to develop, integrate and demonstrate critical flight control and flight management technologies that enable cooperative flight operations of package comprised of UCAVs. The cooperative control architecture enables management and control of an integrated strike package by the aircrews in the combat aircraft. In FY03, real-time operator in the loop simulations will be conducted.		0.500	
(U) Materials and Technologies for Reverse Saturable Absorption (AFRL/ Australia) - Planned cooperative project to develop and characterize platinum poly-ynes materials for possible incorporation in broadband optical limiters in the visible and near infra-red spectral regions for eye and sensor protection from laser device. In FY03, development, testing, and analyses will begin.		0.000	0.300
(U) Novel G Protection for Fighter Pilots (AFRL/ Germany) - Planned cooperative project to develop improvements to the Libelle liquid-filled anti-G suit. Efforts will focus on improved relaxed G tolerance, incorporation of positive pressure breathing, improved high altitude protection, and revised anti-G training. In FY03, development work will begin on improved relaxed G tolerance, incorporation of positive pressure breathing, improved high altitude protection, and revised anti-G training.		0.000	0.100 0.050
(U) Optical Sensor Protection Development and Evaluation (AFRL/ UK) - Planned cooperative project to develop and assess		0.000	0.850 0.000
Project NATO	R-1 Shopping List - Item No. 46-4 of 46-13		Exhibit R-2a (PE 0603790F)

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promising electro-optic protection materials, devices, and configurations for laser hazard and threat protection for eyes and sensors. In FY03, development, testing, and analyses will begin.			
(U) Spatial Disorientation Countermeasures (AFRL/ The Netherlands) - Planned cooperative project to evaluate the spatial disorientation research device and trainer, called DESDEMONA, and develop improvements. Efforts will focus on assessment of DESDEMONA relative to current simulators, development of night vision goggle and helmet mounted display interfaces, and development of revised training approaches. In FY03, the comparative assessment will be conducted; and the development of night vision goggle and helmet mounted display interfaces, and the development of revised training approaches, will begin.		0.000	0.100 0.050
(U) Strike Warrior (AFRL/ UK) - Ongoing cooperative project to develop, demonstrate, and test interface technology and concepts for future advanced strike aircraft. It is a follow-on to the Vista Warrior project. The Strike Warrior project will increase the pilot's tactical capabilities with improvements in two related aspects of interface design. First, the interface hardware will be developed to enable better presentation of a larger variety of mission data. This will include large area cockpit displays linked with advanced interface technologies. Second, new approaches to real-time human engineering will be developed to allow the pilot to manage the new display capabilities and information. In FY03, flight testing and trials will continue.		1.000	0.750 0.750
(U) Assessment of C3 Team Performance in Sustained Operations (AFRL/ Sweden) - Planned cooperative project studying the effects of acute and chronic fatigue in complex decision-making and team performance. This project will use a platform called C3FIRE to assess the effects of fatigue on adaptive team response, agility, and versatility to unpredictable, time-critical and long-duration high-ops tempo events.			0.100 0.130
(U) C-2 Warrior (AFRL/ Australia) - Planned cooperative project will develop advanced work-centered interface technologies to enhance ISR Collection Management and Air Space Control operations within an Air Operations Center (AOC). The work-centered interface systems will integrate stereoscopic visualization, speech control, head-eye based control, gesture recognition, intelligent interface agents, and face recognition. By combining technical components within a work-centered organizing framework, an interface client system can be developed that will improve information integration, decision making, and operational execution.			0.150 0.350
(U) Coalition Mission Training (AFRL/ Canada/ UK) - Planned cooperative project is being conducted to enable warfighters to train for coalition air operations while remaining at their home stations. Partner nations will develop distributed simulation technologies, implement a multi-national distributed training network, and conduct a series of coalition force training exercises. Warfighters will use real-time virtual simulators to conduct readiness training for combined air operations within a common synthetic environment. The program will support incorporation of USAF simulators located outside the Continental US into Distributed Mission Training exercises and will provide the foundation for integrating coalition partners' simulation assets into future multi-national training readiness exercises.			0.155 0.300
(U) Distributed Mission Training (DMT) Technologies (AFRL/ Canada) - Planned cooperative project to develop DMT technologies that will enhance allied simulator based training of fighter aircrews and demonstrate proof of concept. Project will complete research and development of next generation visual systems for DMT to include ultra-high		0.329	0.271

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<p>resolution laser projector, image generator, and collimating display screen materials.</p> <p>(U) Enhanced C3 Team Training in Sustained Operations (AFRL / The Netherlands) - Planned cooperative project to evaluate team performance in advanced capabilities. This effort will evaluate the effects of fatigue on adaptive team performance in unpredictable, time-critical and long-duration high-ops tempo events. The primary goal will be to enhance a simulated environment for developing operational teamwork under wartime conditions characterized by mental fatigue, uncertainty, unexpected events, high-ops tempo, and/or sustained operations.</p> <p>(U) Fit and Accommodation Consulting Tools (AFRL / Canada, The Netherlands) - Planned cooperative project to develop web based, comprehensive, international data system on 3-D body size, shape, fit, and performance. The new data visualization tools will be used to make information more usable, and additional data on pilot performance will be more dynamic.</p> <p>(U) High-Power Microwave Narrowband Effects Investigations (AFRL / UK) - Planned cooperative project will conduct High-Power Microwave (HPM) electronics effects experiments in the UK. There is a need for HPM effects informatic on electronic systems in a statistically significant format with high confidence values in order to investigate the impact future HPM systems on the battlefield. There is a need to perform test series in order to build up a library of electronic asset response distributions. This cooperative project will perform these needed experiments and tests.</p> <p>(U)</p> <p>(U)</p> <p>(U)</p> <p>(U) Programmable Integrated Ordnance Suite (PIOS) Phase II (AFRL/ UK) - Planned cooperative project to develop and demonstrate advanced missile ordnance technology. New ordnance suite capability will be achieved by coupling an ability to 'see' the target and select the best aimpoint with the ability to direct the warhead fragments to intercept the target at that specific aimpoint. This will be a continuation of Phase I PIOS.</p> <p>(U) Engine Component Life Enhancement -- Program Continuation (AFRL / MLL/Australia) - Cooperative project that will enabled both country participants to mutually evaluate, develop, and share basic and applied research in materials, life prediction and nondestructive inspection technology areas. This has enabled both countries to attain a greater understanding of the effects of in-service aging of materials, necessary for each country to reach its respective turbine engine component life extension program objectives. The AECLE Program is integral to and directly supportive of AFRL Materials and Manufacturing Directorate's (AFRL / ML's) overarching Engine Rotor Life Extension (ERLE) Initiative. The overall ERLE objective is to safely double the life of fracture-critical turbine engine components, resulting in projected cost avoidances in excess of \$1B through 2020 when fully implemented. This FY05 ICR&D Project Nomination seeks ICR&D funding to leverage AFRL / MLL core resources that will be matched, in total, by Australia to implement this new proposal and facilitate continued development and validation of mutually beneficial life extension technologies.</p> <p>(U) HPM Effects Testing and Analysis (AFL/DEH/UK) - Planned cooperative project that collect and analyze a body of HPM effects data for selected families of electronic systems and networks that will help to provide much more definitive</p>	<p>0.050</p> <p>0.140</p> <p>0.075</p> <p>0.250</p> <p>0.300</p> <p>0.075</p>	<p>0.025</p> <p>0.140</p> <p>0.464</p> <p>0.300</p> <p>0.075</p>
Project NATO	R-1 Shopping List - Item No. 46-6 of 46-13	Exhibit R-2a (PE 0603790F)

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<p>answers to the questions that face the HPM source design community and the HPM applications designers. The Orion Facility that the UK MOD purchased in the US in 1995 has proved to be the best in the world at varying important parameters of the radiated narrowband, HPM waveforms. The data that is obtained from properly designed experiments in the Orion can be used with rigorous statistical techniques to generate HPM probability-of-effect predictions for the families of electronics that are tested. This information is badly needed to generate the optimum design parameters for future HPM sources.</p>									
(U)	Refractive Turbulence and Transient Electronic Disconnectivity (AFRL/VS/Australia) - This Cooperative project falls within the AFRL/VS thrust areas of Surveillance and Force Projection, under which is the Optical Turbulence Program a technical area driven by the operational requirements of the Airborne Laser (ABL) Program and the High Energy Laser-Joint Technology Office (HEL-JTO) AFRL/CC Memorandum for HQ AFMC/DR, stated requirement for stratospheric turbulence research and improved forecasting capability to support of U-2 and UAV operations. The projected use of directed energy weapons, high band-width laser communication (air-to-air, air-to-ground and air-to-space) and high resolution imagery from manned and unmanned aircraft requires knowledge of and the ability to forecast the location, severity, and duration of refractive turbulence structure that limit system performance.						0.050		
(U)	Turbine Engine Particulate Matter Emissions (AEDC / UK) - Planned cooperative project to jointly evaluate state-of-the-art particulate measurement instrumentation, modify the instrumentation for robust operation in turbine test cells, develop particulate characterization test procedures, and validate the performance during gas turbine engine (GT) testing. The project will produce test protocol, instrumentation and procedures, adequate to assess regulatory agency requirements for GTE particulate matter emissions.						0.385	0.800	
(U)	Management and administrative support and travel						0.200	0.100	
(U)	Tropospheric Refraction and Propagation Modeling For Airborne Surveillance Systems (AFRL/Australia, UK) - Planned cooperative project to combine a low cost aircraft measurement platform for simultaneous measurements of refraction Airborne Warning and Control System (AWACS) radar signal strength reduction with parabolic equation methods of microwave propagation modeling for evaluation and prediction of refraction conditions. In FY02, testing and validation were conducted to determine the adverse performance of microwave and infrared systems that perform surveillance, communication, signal intelligence, and direct energy functions in electronic battlespace.						0.150	0.075	
(U)	Total Cost						4.070	3.855	3.930
(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)	Not Applicable.								
(U)	D. Acquisition Strategy								
<p>A principal goal of the NATO Cooperative R&D program is to effectively utilize the aggregate resources invested by the US and our allies in conventional defense R&D. This program element provides the critical funding incentive needed to pursue ICRD&A agreements and helps to (a) leverage USAF and allied resources through cost</p>									
Project NATO			R-1 Shopping List - Item No. 46-7 of 46-13			Exhibit R-2a (PE 0603790F)			

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PROJECT NUMBER AND TITLE

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sharing and economies of scale; (b) exploit the best US and allied technologies for equipping coalition forces; (c) demonstrate areas of commonality or interoperability with our allies; and (d) accelerate the availability of defense technology and systems. Candidate projects are reviewed and approved by the USD(AT&L). An international agreement defining project objectives, responsibilities and costs is required prior to release of funds. To obtain these funds and ensure service commitment, projects are selected from existing or new RDT&E programs funded in the Future Years Defense Plan (FYDP). Project offices must show matching funds and contributions from associated program elements and equitable allied funding. As appropriate, funding responsibility for out-year requirements and follow-on efforts are transferred to the project office and associated program elements. Most contracts are awarded after full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603790F NATO Cooperative R&D				PROJECT NUMBER AND TITLE NATO Nato Coop R&D			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2003 Cost	FY 2003 Cost	FY 2003 Award	FY 2004 Cost	FY 2004 Award	FY 2005 Cost	FY 2005 Award	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
Sytronics Dayton, OH	CPFF		0.600							Continuing	TBD	
Boston College Boston, MA	CFSR		0.155							Continuing	TBD	
RADEX Bedford, MA	CPFF		0.920							Continuing	TBD	
Pacific Sierra Research Santa Monica, CA	CPFF		0.060							Continuing	TBD	
CPI Fairfax, VA	CPFF		0.180							Continuing	TBD	
U of Massachusetts Lowell, MA	CR		0.170							Continuing	TBD	
KEO Consultants Brookline, MA	CPFF		0.220							Continuing	TBD	
NW Research Associates Bellevue, WA	CPFF		0.110							Continuing	TBD	
Visdyne Inc.	CPFF		0.400							Continuing	TBD	
U of Texas Austin, TX	CPFF		0.025							Continuing	TBD	
Applied Research Lab, U of Texas Austin, TX	CPFF		0.105							Continuing	TBD	
Lockheed Martin Orlando, FL	CPFF		0.913							Continuing	TBD	
Raytheon TI Systems	CPFF		0.683							Continuing	TBD	
Boeing Seattle, WA	CPFF		0.260							Continuing	TBD	
UES, Inc Dayton, OH	CPFF		0.100							Continuing	TBD	
Pratt & Whitney West Palm Beach, FL	CPFF		1.000							Continuing	TBD	
AFRL WPAFB, OH	TBD		0.000	3.820		3.270		3.030		Continuing	TBD	
Boeing Long Beach, CA	CPFF		0.265							Continuing	TBD	
Boeing Seattle, WA	CPFF		0.200							Continuing	TBD	
Lockheed Marietta, GA	CPFF		0.325							Continuing	TBD	
Northrop Hawthorne, CA	CPFF		0.050							Continuing	TBD	
Selectech Dayton, OH	CPFF		0.050							Continuing	TBD	
AFRL Eglin AFB, FL	TBD		0.000							Continuing	TBD	
AFRL Hanscom AFB, MA	TBD		0.000							Continuing	TBD	
AFRL Mesa, AZ	TBD		0.000							Continuing	TBD	
AFRL Rome, NY	TBD		1.250							Continuing	TBD	
None											0.000	
Subtotal Product Development			8.041	3.820		3.270		3.030		Continuing	TBD	0.000

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Remarks:							
<u>(U) Support</u>							
AFRL Hanscom AFB, MA			0.135			Continuing	TBD
AFRL WPAFB, OH			0.005			Continuing	TBD
45th Space Wing Patrick AFB, FL	AF 185		0.005			Continuing	TBD
AFRL Eglin AFB, FL			0.050			Continuing	TBD
Pender Technology, TN	CR		0.090			Continuing	TBD
Veridian Dayton, OH			0.145			Continuing	TBD
None							0.000
Subtotal Support			0.430	0.000	0.000	0.000	Continuing TBD 0.000
Remarks:							
<u>(U) Test & Evaluation</u>							
Air Force Development Test Center, FL	PO		0.054			Continuing	TBD
Sverdrup Technology, Inc TN	CPAF		1.443			Continuing	TBD
Naval Air Warfare CenterPoint Mugu, CA	MIPR		0.040			Continuing	TBD
Fora Laser System	PO		0.100			Continuing	TBD
Arnold Engineering Development Center, TN	TBD		0.000	0.250	0.385	0.800	Continuing TBD
Fora laser system	PO		0.147			0.000	0.147
Subtotal Test & Evaluation			1.784	0.250	0.385	0.800	Continuing TBD 0.000
Remarks:							
<u>(U) Management</u>							
Subtotal Management			0.000	0.000	0.200	0.100	0.000 0.300 0.000
Remarks:							
<u>(U) Total Cost</u>			10.255	4.070	3.855	3.930	Continuing TBD 0.000

Exhibit R-4, RDT&E Schedule Profile

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Name of ICR&D Project & In't Agreement Schedule	Start Date	END IA	PE
Atlantic Paw - Adv Transm Lang & alloc....	FY 00	FY 03	63790
Cooperative R&D Efforts in Imaging Spectrometer Development	FY 99	FY 03	63790
Distributed Mission Training - Virtual Air Environment	FY 99	FY 03	63790
Engine Component Life Enhancement	FY 02	FY 06	63790
Integrated Tactical Aircraft Control (ITAC)	FY 03	FY 05	63790
Scintillation Impacts on Communications....	FY 00	FY 03	63790
Strike Warrior (follow on to Vista Warrior)	FY 02	FY 06	63790
Trophospheric Refraction	FY 03	FY 05	63790
Flight Test Miniature Munitions, Phase 2	FY 03	FY 05	63790
Materials & Technologies for Reverse....	FY 03	FY 05	63790
Novel G Protection	FY 03	FY 05	63790
Optical Sensor Protection Development	FY 03	FY 04	63790
Spatial Disorientation Countermeasures	FY 03	FY 05	63790
Assessment of C3 Team Performance	FY 04	FY 07	63790
C-2 Warrior	FY 04	FY 07	63790
Coalition Mission Training	FY 04	FY 07	63790
DMT Technologies	FY 04	FY 07	63790
Enhanced C3 Team Training in Operations	FY 04	FY 07	63790
Fit and Accommodation Consulting Tools	FY 04	FY 07	63790
High-Power Microwave Narrowband Effects	FY 04	FY 07	63790
Programmable Integrated Ordnance (PIOS)	FY 04	FY 07	63790
Turbine Engine Particulate Matter	FY 04	FY 07	63790
Engine Component Life Enhancement (Program Continuation)	FY 05	FY 07	63790
HPM Effects Testing & Analysis	FY 05	FY 07	63790
Refractive Turbulence & Transient Electronic Disconnectivity	FY 05	FY 07	63790

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004		
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		<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Schedule Profile				
(U) Strike Warrior Project				
(U) Flights test and trials		4Q		
(U) Cooperative R&D Efforts in Imaging Spectrometer Development Project				
(U) - Field testing		4Q		
(U) Integrated Tactical Aircraft Control (ITAC) Program				
(U) - Agent maturation requirements and develop of delivery schedule		4Q		
(U) - Joint demonstration preparation		4Q		
(U) - Joint demonstration			1Q	
(U) ATLANTIC PAW				
(U) - SoRDS testbed			3Q	
(U) - Interoperability testing of WDL waveforms			4Q	
(U) Engine Component Life Extension Project				
(U) - Advanced life prediction methodologies for ERLE			3Q	
(U) - Advanced nondestructive inspection/evaluation technology			4Q	
(U) Distributed Mission Training & Virtual Air Environment Tech				
(U) - Visual research and display specification				2Q
(U) - Long-haul networking and force construction				3Q
(U) Flight Test Demo Mini Munitions Release form Internal Weaps				
(U) - Project agreement signed			2Q	
(U) - Test planning and preparation			2Q	
(U) - Test conduct and analyses			4Q	
(U) - Test report			4Q	
(U) Material and Technologies for Reverse Saturable Absorption				
(U) - Project agreement signed			2Q	
(U) - Development, testing, and analyses			4Q	
(U) Novel G Protection for Fighter Pilots				
(U) - Improvements development			4Q	
(U) Optical Sensor Protection Development and Evaluation				
(U) - Project agreement signed			3Q	
(U) - Development, testing, and analyses			4Q	
(U) Spatial Disorientation Countermeasures				
(U) - Comparative assessment			4Q	
(U) - Development of improvements			4Q	

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Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
04 Advanced Component Development and Prototypes (ACD&P)	0603790F NATO Cooperative R&D	NATO Nato Coop R&D
(U) Assessment of C3 Team Performance in Sustained Operations		
(U) Projec agreement signed		2Q
(U) - Technology development		1Q
(U) - Experimental studies and data analysis		4Q
(U) C-2 Warrior		
(U) - Project agreement signed		3Q
(U) - Development work-centered interface technologies		4Q
(U) - Test ISR Collection Manager against new requirements and situation		4Q
(U) Coalition Mission Training Using Distributed Mission Simulation		
(U) - Project agreement signed		2Q
(U) - Develop and test basic systems for coalition operations		4Q
(U) - Conduct and document coalition exercises in real-time simulators		4Q
(U) Distributed Mission Training (DMT) Technologies		3Q
(U) - Signed international agreement		3Q
(U) - Technology development		4Q
(U) Fit and Accommodation Consulting Tools		4Q
(U) - Dynamic and performance data gathering		4Q
(U) - Digital pilot profiles and injury potential		4Q
(U) Enhanced C3 Team Training in Sustained Operations		
(U) - Project agreement signed		2Q
(U) - Technology development		2Q
(U) - Experimental studies and data analysis		4Q
(U) High-Power Microwave Narrowband Effects Investigations		4Q
(U) - Develop detailed design baseline		2Q
(U) - Test high fidelity model and performance analysis		4Q
(U) - Report system performance results		4Q
(U) Turbine Engine Particulate Matter Emissions		
(U) - Project agreement signed		2Q
(U) - Technology development		4Q
(U) - Test and analysis		4Q