

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY 4 - Demonstration/validation	PE NUMBER AND TITLE 0603790A - NATO Research and Development						PROJECT 691		
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
691 NATO RSCH & DEVEL	1847	6375	8773	8912	9110	9303	9522	0	76924

A. Mission Description and Budget Item Justification: This program implements the provisions of Title 10 U.S. Code, Section 2350a, Cooperative Research and Development (R&D) Projects: Allied Countries. The objective is to improve, through the application of emerging technologies, the conventional defense capabilities of the United States, the North Atlantic Treaty Organization (NATO), U.S. major non-NATO allies and Friendly Foreign countries. This program element only funds the U.S. equitable share of the cooperative R&D project spent in the U.S. Projects are implemented with the partners through international agreements which define the scope, cost and work sharing arrangements, management, contracting, security, data protection and third party transfers. By technology sharing the program jointly develops equipment with our partners to improve operational efforts by achieving multi-national force compatibility through the use of similar equipment and improved interfaces. Funds support all the R&D costs including the identification of cooperative opportunities and administration of the program. All funds are used to pay for the U.S. work share in the United States at U.S. Government and U.S. contractor's facilities. This program focuses on international cooperative technology demonstration, validation, and interoperability of Army weapon and command, control, communications and information (C3I) systems.

FY 2001 Accomplishments:

- 1007 Multilateral Interoperability Program (MIP) (Partners: Germany, France, United Kingdom, Canada, Italy): Continued integration work from the Command and Control Systems Interoperability Program (C2SIP) into an Advanced Concept Technology Demonstration (ACTD) to achieve NATO levels four (messaging) and five (database) interoperability and also extended the effort into a sustainable program to incorporate lessons learned into national systems. Extended participation to include Canada and Italy.
- 410 Electro-thermal Chemical (ETC) Gun Technologies for Future Military Vehicle Systems (Partner: Germany): Sought to jointly advance ETC gun technologies, and demonstrate feasibility of future large caliber ETC guns. Investigation was conducted based on sub-scale and full-scale experimental results and analysis tools.
- 310 International Agreement Tracking System (IATS) Development and Implementation, NATO R&D Policy Development, and Report to Congress Pursuant to 10 USC 2350a, prepare and provide to USD(A&T) the Army section of the 2001 Report to Congress on the International Cooperative Research and Development Program.
- 120 Intense Laser Pulse Propagation in the Atmosphere (ILPPA) (Partner: Canada): Jointly developed a solution to the problem of transporting intense laser pulses over long distances in the atmosphere to induce strong non-wavelength specific fluorescence on target for remote sensing. Conducted experiments to validate propagation mostly in Canada, and conducted simulation and modeling in the U.S.

Total 1847

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FY 2002 Planned Program

- 1043 Multilateral Interoperability Program (MIP) (Partners: Germany, France, United Kingdom, Canada, Italy): Continue integration work from the Command and Control Systems Interoperability Program (C2SIP) into an Advanced Concept Technology Demonstration (ACTD) to achieve NATO levels four (messaging) and five (database) interoperability and also extends the effort into a sustainable program to incorporate lessons learned into national systems.

- 900 Simulation and Command and Control (C2) Information System Connectivity Experimentation (SINCE) (Partner: Germany): Defining and demonstrating a generic solution for interfacing and networking Brigade/Battalion (BDE/BN) Command and Control Information Systems (C2IS) and applicable Modeling and Simulation (M&S) systems as required to support Coalition Force collaborative Mission Management experimentation.

- 500 Automated Identification Technology for Asset Tracking/Total Asset Visibility (TAV) (Partner: United Kingdom): Asset Tracking Data System will allow seamless tracking and identification of US and UK materiel shipment/consignments and will significantly enhance US coalition warfare capabilities.

- 902 Senior National Representatives (Army)(SNR(A))/International Cooperative Opportunities (ICO) Projects (Partners: France, Germany, United Kingdom, Italy): Supporting harmonization of programs at various levels; exchanging information, identifying knowledge gaps and conduct feasibility studies to further promote cooperative development; standardizing, fielding and roadmapping various processes; distributing the workload among the different nations.

- 530 International Agreement Tracking System (IATS)/International Online (IO) Development and Implementation, NATO/International Cooperative R&D Policy Development, and Report to Congress Pursuant to 10 USC 2350a, prepare and provide to USD(A&T) the Army section of the 2002 Report to Congress on the International Cooperative Research and Development Program.

- 2000 Technology Research and Development (TRDP) Projects (Partners: United Kingdom, Germany, France, Canada, Australia, Netherlands, Korea, Norway): The scope of this MOU encompasses R&D collaboration on basic, exploratory and advanced technologies, the maturation of which may lead to the development of technologically superior conventional weapon systems.

- 500 Engineer and Scientist Exchange Program (ESEP) (Partner: Major NATO Allies): Supports and facilitates cooperation by expanding the MOU participants' knowledge of each others' research, development and acquisition process.

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FY 2003 Planned Program

- 1500 Techniques for Active Defense (TAD) (Partner: United Kingdom): Cooperative efforts to define short-range air and missile defense requirements to include generic threat definition and defended footprint parameters. Will cooperatively develop and evaluate a point design. Space and Missile Defense Command (SMDC) is also designing and fabricating a testbed.
- 800 Simulation and Command and Control (C2) Information System Connectivity Experimentation (SINCE) (Partner: Germany): Continue to define and demonstrate a generic solution for interfacing and networking Brigade/Battalion (BDE/BN) Command and Control Information Systems (C2IS) and applicable Modeling and Simulation (M&S) systems as required to support Coalition Force collaborative Mission Management experimentation.
- 1000 Automated Identification Technology for Asset Tracking/Total Asset Visibility (TAV) (Partner: United Kingdom): Continue development of the Asset Tracking Data System which will allow seamless tracking and identification of US and UK materiel shipment/consignments and will significantly enhance US coalition warfare capabilities.
- 1000 Senior National Representatives (Army) (SNR(A))/International Cooperative Opportunities (ICO) Projects (Partners: France, Germany, United Kingdom, Italy): Supporting harmonization of programs at various levels; exchanging information, identifying knowledge gaps and conduct feasibility studies to further promote cooperative development; standardizing, fielding and roadmapping various processes; distributing the workload among the different nations.
- 690 International Agreement Tracking System (IATS)/International Online (IO) Development and Implementation, NATO/International Cooperative R&D Policy Development, and Report to Congress Pursuant to 10 USC 2350a, prepare and provide to USD(A&T) the Army section of the 2002 Report to Congress on the International Cooperative Research and Development Program.
- 2783 Technology Research and Development Projects (TRDP) (Partners: United Kingdom, Germany, France, Canada, Australia, Netherlands, Korea, Norway): The scope of this MOU encompasses R&D collaboration on basic, exploratory and advanced technologies, the maturation of which may lead to the development of technologically superior conventional weapon systems.
- 500 Engineer and Scientist Exchange Program (ESEP) (Partner: Major NATO Allies): Supports and facilitates cooperation by expanding the MOU participants' knowledge of each others' research, development and acquisition process.
- 500 Multilateral Interoperability Program (MIP) (Partners: Germany, France, United Kingdom, Canada, Italy): Continue integration work from the Command and Control Systems Interoperability Program (C2SIP) into an Advanced Concept Technology Demonstration (ACTD) to achieve NATO levels four (messaging) and five (database) interoperability and also extends the effort into a sustainable program to incorporate lessons learned into national systems.

Total 8773

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<u>B. Program Change Summary</u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	1902	8633	8843
Appropriated Value	1920	6433	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-58	0
b. SBIR / STTR	-56	0	0
c. Omnibus or Other Above Threshold Reduction	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-17	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-70
Current Budget Submit (FY 2003 PB)	1847	6375	8773

C. Other Program Funding Summary: None

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D. Acquisition Strategy: All projects are test or technical demonstrations to feed into potential new requirements in support of Army Transformation to the Objective Force or as product improvements to Legacy Force.

<u>E. Schedule Profile</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>
Multilateral Interoperability Program (MIP)							
- Complete Lab Demo/Tests & Simulations	3Q						
- Complete C2SIP ATCD		3Q					
- Complete Integration into MCS			3Q				
Electro-Thermal Chemical (ETC)							
- Fabricate ETC Gun Module	4Q						
- Complete System Test and Report		4Q					
Intense Laser Pulse Propagation in the Atmosphere							
- Complete Modeling and Simulation	4Q						
- Complete Testing and Experimentation		4Q					
SINCE - C2 Systems							
- Interface/Network Definition		4Q					
- Complete Modeling and Simulation			4Q				
- Complete Demonstration				4Q			
- Final Report					2Q		
Total Asset Visibility (TAV)							
- Conclude International Agreement		3Q					
- Complete Requirements Definition			4Q				
- Develop Asset Tracking Architecture				1-4Q			
- Joint Testing and Demonstration					1-4Q		
- Complete Final Report						2Q	
Senior National Representatives (Army)							
- Mine Protection For Armored Vehicles (MPAV) Feasibility Study		2-4Q	1-4Q				

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<u>E. Schedule Profile (continued)</u>	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
- Identify International Cooperative Opportunities International Agreement Tracking System (IATS) / International On Line (IOL)		1-4Q	1-4Q	1-4Q	1-4Q		
- Achieve IATS and Tri Service Server (TSS) Database Interoperability	4Q						
- Initial Operational Capability of IOL		3Q					
- Incorporate Tier II and Tier III IOL Requirements Engineer and Scientist Exchange Program (ESEP)		3-4Q	1-4Q				
- Identify and Complete ESEP Assignments Technology Research and Development Projects (TRDP)		1-4Q	1-4Q				
- Identify and Conclude TRDP Project Agreements		1-4Q	1-4Q				

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Multilateral Interoperability Program (MIP)	CPIFF	C3S, CSC Fort Washington, PA	0	690		700		0		0	1390	0
b . Electro-Thermal Chemical (ETC) Gun - Munitions & Propellants	TBD	UDLP Minneapolis, MN	0	287		0		0		0	287	0
c . International Agreement Tracking System (IATS) - Software Development	TBD	JIL Information Systems Vienna, VA	0	217		234		277		0	728	0
d . Intense Laser Pulse Propagation in the Atmosphere (ILPPA) - Sensors	TBD	TBD	0	80		0		0		0	80	0
e . Automated Identification Technology for Asset Tracking/Total Asset Visibility (TAV) - Software	TBD	TBD	0	0		1050		1020		0	2070	0
f . Engineer-Scientist Exchange Program (ESEP)	TBD	TBD	0	0		650		350		0	1000	0
g . Techniques for Active Defense (TAD) - Missile Defense	TBD	TBD	0	0		0		1820		0	1820	0

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I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
h . Simulation & C2 Information System Connectivity Experimentation (SINCE) - C2 Systems	TBD	TBD	0	0		680		376		0	1056	0
i . Senior National Representatives (Army) (SNR[A])	TBD	TBD	0	0		350		350		0	700	0
j . TRDP	TBD	TBD	0	0		924		1942		0	2866	0
			0	1274		4588		6135		0	11997	0
Subtotal:			0	1274		4588		6135		0	11997	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MIP	MIPR	CECOM Ft. Monmouth, NJ	0	160		150		0		0	310	0
b . ETC Gun	MIPR	TACOM, Warren, MI	0	62		0		0		0	62	0
c . IATS	MIPR	TBD	0	47		50		54		0	151	0
d . ILPPA	MIPR	AMCOM, Redstone Arsenal, AL	0	18		0		0		0	18	0

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II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
e . Automated Identification Technology for Asset Tracking/TAV	MIPR	LOGSA	0	0		225		225		0	450	0
f . ESEP	MIPR	TBD	0	0		125		75		0	200	0
g . TAD	MIPR	AMCOM, Redstone Arsenal, AL	0	0		0		390		0	390	0
h . Simulation and C2 Information System Connectivity Experimentation (SINCE)	MIPR	CECOM Ft. Monmouth, NJ	0	0		100		75		0	175	0
i . SNR(A)	MIPR	TBD	0	0		75		75		0	150	0
j . TRDP	MIPR	TBD	0	0		180		425		0	605	0
Subtotal:			0	287		905		1319		0	2511	0

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III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MIP	MIPR	CECOM Ft Monmouth, NJ	0	106		100		0		0	206	0
b . ETC Gun	MIPR	Aberdeen Proving Ground, NJ	0	41		0		0		0	41	0
c . IATS	MIPR	TBD	0	31		33		36		0	100	0
d . ILPPA	MIPR	White Sands Missile Range, NM	0	12		0		0		0	12	0
e . Automated Identification Technology for Asset Tracking/TAV	MIPR	AMSAA, Aberdeen Proving Ground, NJ	0	0		150		150		0	300	0
f . ESEP	MIPR	TBD	0	0		70		50		0	120	0
g . TAD	MIPR	White Sands Missile Range, NM	0	0		0		260		0	260	0
h . Simulation and C2 Information System Connectivity Experimentation (SINCE)	MIPR	CECOM Ft Monmouth, NJ	0	0		60		50		0	110	0
i . SNR(A)	MIPR	TBD	0	0		50		50		0	100	0
j . TRDP	MIPR	TBD	0	0		120		283		0	403	0

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III. Test and Evaluation (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	190		583		879		0	1652	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . MIP	MIPR	PEO C3S, Ft. Monmouth, NJ	0	53		50		0		0	103	0
b . ETC Gun	MIPR	PEO GCSS	0	21		0		0		0	21	0
c . IATS	MIPR	TBD	0	16		17		18		0	51	0
d . ILPPA	MIPR	AMCOM, Redstone, AL	0	6		0		0		0	6	0
e . Automated Identification Technology for Asset Tracking/TAV	MIPR	LOGSA	0	0		75		75		0	150	0
f . ESEP	MIPR	TBD	0	0		32		25		0	57	0
g . TAD	MIPR	PEO MD, Redstone Arsenal, AL	0	0		0		130		0	130	0

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IV. Management Services (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
h . Simulation and C2 Information System Connectivity Experimentation (SINCE)	MIPR	CECOM, Ft. Monmouth, NJ	0	0		40		25		0	65	0
i . SNR(A)	MIPR	TBD	0	0		25		25		0	50	0
j . TRDP	MIPR	TBD	0	0		60		142		0	202	0
Subtotal:			0	96		299		440		0	835	0
Project Total Cost:			0	1847		6375		8773		0	16995	0