

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE				
5 - System Development and Demonstration	0604715A - Non-System Training Devices - Eng Dev				
COST (In Thousands)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	35361	38299	30209	Continuing	Continuing
241 NSTD COMBINED ARMS	32870	32865	28159	Continuing	Continuing
573 Program Executive Office Simulation, Training SPT	2011	4939	2050	Continuing	Continuing
587 ARMY DEVELOP CTIA/TENA CAPABILITY	480	495			975

A. Mission Description and Budget Item Justification: Program Element funds development of Non-System Training Devices to support force-on-force training at the Combat Training Centers (CTC), general military training, and training on more than one item/system, as compared with system devices which are developed in support of a specific item/weapon system. Training devices and training simulations contribute to the modernization of the forces by enabling and strengthening combat effectiveness through realistic training solutions for the Warfighter. Training devices maximize the transfer of knowledge, skills, and experience from the training situation to a combat situation. Force-on-force training at the National Training Center (NTC), Ft. Irwin, CA; Joint Readiness Training Center (JRTC), Ft. Polk, LA, and Joint Multinational Readiness Center (JMRC), formerly the Combat Maneuver Training Center (CMTC), Hohenfels, Germany; and battle staff training in Battle Command Training Program (BCTP) provide increased combat readiness through realistic collective training in low, mid, and high intensity scenarios. Project 241, Non-System Training Devices-Combined Arms, develops simulation training devices for Army-wide use, including the CTCs. Project 573 funds key organizational support to Army/DoD Transformation via innovative simulation and training device efforts. Program Executive Office (PEO) Simulation, Training and Instrumentation (STRI)'s unique geographic colocation with other services facilitates joint training solutions in a common environment.

FY 2010 Project 241 funds significant development efforts on the Combat Training Center Instrumentation Systems (CTC-IS), One Tactical Engagement Simulation System (OneTESS), and further implementation of Live Training Transformation (LT2) through development of the Common Training Instrumentation Architecture (CTIA); enabling Joint training with the Joint Forces Command. Exportable Training Capability-Instrumentation System (ETC-IS) program funding will provide for development, integration, and testing of tracking capability, coverage and accuracy, and new Battle Command systems architecture in order to increase training fidelity for Brigade Combat Team rotations to better prepare units for deployment. Live, Virtual, Constructive Integrating Architecture (LVC-IA) supports DoD Training Transformation (T2) and Army Training Doctrine by providing the required integrated LVC mission rehearsal and training environment that allows Commanders, leaders, battle staffs & units to "train as they operate" as part of a Joint Task Force.

FY 2010 Project 573 will provide for minimum PEO STRI core operations supporting development of training devices and simulations by PEO STRI Project Managers (PM TRADE, PM ITTS, PM CATT, PM Future Force (S) and PM Constructive Simulation).

Project 573 includes a Congressional Add of \$2,990K for the Center of Excellence for Military Operations in Urban Terrain and Cultural Training. This was moved from Project 573 to 241 subsequent to the database lock for proper execution.

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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010
Previous President's Budget (FY 2009)	35731	35424	16240
Current BES/President's Budget (FY 2010)	35361	38299	30209
Total Adjustments	-370	2875	13969
Congressional Program Reductions		-125	
Congressional Rescissions			
Congressional Increases		3000	
Reprogrammings	512		
SBIR/STTR Transfer	-882		
Adjustments to Budget Years			13969

Change Summary Explanation:
 FY 2010 includes increases for new programs under the Non-System Training Devices project line.
 - Live, Virtual, Constructive Integrating Architecture (LVC-IA)
 - Exportable Training Capability-Instrumentation System (ETC-IS)
 - Combat Training Center Instrumentation System (CTC IS)

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BUDGET ACTIVITY 5 - System Development and Demonstration	PE NUMBER AND TITLE 0604715A - Non-System Training Devices - Eng Dev			PROJECT 241	
COST (In Thousands)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
241 NSTD COMBINED ARMS	32870	32865	28159	Continuing	Continuing

A. Mission Description and Budget Item Justification: This project supports development of prototype training devices to support Combined Arms (Infantry, Armor, Aviation, Air Defense, Artillery, Engineer, Chemical, and Support troops) training and multi-system training within the Army, to include the Reserve Components.

The Common Training Instrumentation Architecture (CTIA) provides the common architecture framework for developing the Live Training Transformation (LT2) Product Line of live training systems supporting Army-wide Force-On-Force (FOF) and Force-On-Target (FOT) training requirements. CTIA is a spiral development, evolutionary acquisition program that continues to provide developmental support for the LT2 Product line in compliance with the DoD Test and Training Enabling Architecture (TENA).

The One Tactical Engagement Simulation System (OneTESS) provides for an advanced, joint, collective, combined arms, live force-on-force training system using tactical weapon systems supported by a family of Training Aids, Devices, Simulations and Simulators (TADSS) that support up to brigade-level exercises, for every weapon and vehicle platform, at Homestation, Maneuver Combat Training Centers (MCTC), and deployed sites.

The Combat Training Centers (CTCs) provide high-fidelity live, virtual, and constructive brigade training rotations which prepare Brigade Combat Teams, Joint partners, and supporting units to deploy in support of Army Force Generation (ARFORGEN). Combat Training Center Instrumentation System (CTC IS) develops new data communications systems increasing tracking accuracy and coverage at the CTCs to provide greater training fidelity to training units. CTC IS also develops infrastructure to host OneTESS and FCS requirements.

Exportable Training Capability-Instrumentation System (ETC-IS) provides a rapidly deployable, self-supported, realistic training capability to deliver CTC-like training at locations other than CTCs supplementing CTC throughput by 6-8 rotations to meet Army Force Generation (ARFORGEN) requirements. ETC-IS develops new data communications systems increasing tracking accuracy and coverage and simulating weapons effects and engagements for exportable Brigade Combat Team training rotations to provide greater training fidelity to training units.

The Live, Virtual, Constructive Integrating Architecture (LVC-IA) provides net-centric linkage that collects, retrieves and exchanges data among LVC Training Aids, Devices, Simulations, and Simulators (TADSS) and Joint/Army Battle Command Systems leading to an LVC Integrated Training Environment (ITE). The LVC-IA defines "how" information is exchanged among LVC domains and Battle Command Systems. The LVC Integrating Architecture includes common LVC components such as Enterprise After Action Review (AAR), Command and Control (C2) Adapters, Terrain Databases, Multi-level Security, and Hardware/Software. The integration of Live, Virtual, and Constructive TADSS with Battle Command will enable larger, more robust, and rich training events at reduced cost. The end-state goal is an LVC Integrated Training Environment that approximates the Operating Environment and provides value-added training and mission rehearsal opportunities to Commanders and units.

FY 2010 funds significant development efforts on the Combat Training Center Instrumentation Systems (CTC-IS), One Tactical Engagement Simulation System (OneTESS), and further implementation of Live Training Transformation (LT2) through development of the Common Training Instrumentation Architecture (CTIA); enabling Joint training with the Joint Forces Command. The Exportable Training Capability-Instrumentation System (ETC-IS) program funding will provide for development, integration, and testing of

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tracking capability, coverage and accuracy, as well as new Battle Command systems architecture to increase training fidelity for Brigade Combat Team rotations to better prepare units for deployment.

FY 2010 program funding will support system design, development, integration and demonstration of the Live, Virtual, Constructive Integrating Architecture (LVC-IA) Increment 1 capability to support DoD Training Transformation (T2) and Army Training Doctrine by providing the required integrated LVC mission rehearsal and training environment that allows Commanders, leaders, battle staffs & units to "train as they operate" as part of a Joint Task Force.

Project 573 includes a Congressional Add of \$2,990K for the Center of Excellence for Military Operations in Urban Terrain and Cultural Training. This was moved from Project 573 to 241 subsequent to the database lock for proper execution.

Accomplishments/Planned Program:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
FY08-FY10: Continue spiral development of CTIA to provide the common architecture capabilities that are essential for development and fielding of the CTC, Integrated Military Operations in Urbanized Terrain Training System (IMTS), HITS, and Digital Ranges Training System (DRTS) training instrumentation programs.	6978	5654	2053
FY10: Combat Training Center Instrumentation System (CTC IS) funds the development of the Range Communications Systems at the National Training Center and Joint Readiness Training Center increasing tracking coverage and accuracy in order to increase training fidelity for Brigade Combat Team rotations to better prepare units for deployment.			5051
FY10: Exportable Training Capability-Instrumentation System (ETC-IS) program funding will provide for development, integration, and testing of tracking capability, coverage and accuracy, and new Battle Command systems architecture to increase training fidelity for Brigade Combat Team rotations to better prepare units for deployment.			5268
FY08-FY10: Continues development of One Tactical Engagement Simulation System (One TESS). Refine systems architecture, develop FCS/Joint, Live/Virtual and Constructive solutions and integrate operational testing that supports the training and testing communities into current combat systems under development.	22441	23015	8590
FY08-FY09: Improvised Explosive Device Explosive Simulator (IEDES) - Develops realistic detection and reaction training against IED threats through simulated, but realistic battlefield cues and effects.	308	210	
FY09: Engagement Skills Trainer 2000 (EST) weapon enhancement development including: the M145 machine gun optics, call for and adjust indirect fires, vehicle skate ring and pedestal mounts, and the family of AN/PAS-13 thermal weapon sights.		1743	
FY08-FY09: Develop within the Virtual Patient System (VPS) an effective Tetherless Mannequin (TLM) training capability and a Medical Training Evaluation and Review (MeTER) System.	464	465	
FY08-FY09: The Homestation Instrumentation Training System (HITS) program will integrate and test LT2 products into HITS design.	1679	840	
FY10: Develop system, design, development, integration and demonstration of the Live, Virtual, Constructive Integrating Architecture (LVC-IA) Increment 1 capability.			7197
FY08: Continued development of relevancy capabilities for the Corps Battle Simulation (CBS) program.	1000		
FY09: Small Business Innovative Research/Small Business Technology Transfer Programs.		938	

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Total	32870	32865 28159

<u>B. Other Program Funding Summary</u>	FY 2008	FY 2009	FY 2010	To Compl	Total Cost
OPA3, Appropriation NA0100 Training Devices, Non-System	336272	307483	289548	Continuing	Continuing
OPA3, Appropriation MA6601 CTC Support	21491	57159	83167	Continuing	Continuing

Comment:

C. Acquisition Strategy Competitive development efforts based on performance specifications.

ARMY RDT&E COST ANALYSIS (R3)

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BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
5 - System Development and Demonstration			0604715A - Non-System Training Devices - Eng Dev							241		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
CTC IS	TBS	TBS						4595	3Q	Cont.	Cont.	Cont.
ETC IS	C/FFP	Inter-Coastal Electronics Inc., Mesa, AZ						5104	2Q		5104	5104
CTIA	C/FFP	Lockheed Martin Inc., Orlando, FL	46381	5977	1-2Q	4325	1-2Q	1651	1-2Q	Cont.	Cont.	Cont.
OneTESS	CPFF	General Dynamics, Fairfax, VA	71851	19945	1-2Q	20583	1-2Q	6304	1-2Q	Cont.	Cont.	Cont.
IEDES	MIPR	Multiple				210	2Q				210	210
EST 2000 Weapon Enhancement Development	FFP	Cubic Simulation Systems Division, Orlando, FL				1648	3Q				1648	1648
MSTC	Various	Multiple		436	3-4Q	150	3Q				586	586
HITS	FFP	Riptide, Ovideo, FL		1379	2-4Q						1379	1379
CBS Development	C/FFP	JPL, Cal Tech, Pasadena, CA	53847	1000	3Q						54847	53847
LVC-IA Development	TBS	TBS						5684	1-3Q	Cont.	Cont.	Cont.
Subtotal:			172079	28737		26916		23338		Cont.	Cont.	Cont.
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
CTIA	Multiple	Various	9175	1001	1-4Q	1329	1-4Q	402	1-4Q	Cont.	Cont.	Cont.
OneTESS	Multiple	Various	4590	685	1-4Q	667	1-4Q	676	1-4Q		6618	5939
Subtotal:			13765	1686		1996		1078		Cont.	Cont.	Cont.

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BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
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III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
OneTESS Development and Test	MIPR	Multiple	2058	496	1-4Q	488	1-4Q	580	1-3Q	Cont.	Cont.	Cont.
IEDES	MIPR	Multiple		308	3Q						308	308
HITS	Various	Multiple				740	1-2Q				740	740
LVC-IA Test Support	Various	Multiple						474	1-4Q	Cont.	Cont.	Cont.
Subtotal:			2058	804		1228		1054		Cont.	Cont.	Cont.
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
OneTESS Program Management	Various	PEO STRI, Orlando, FL 32826	4179	1315	1-4Q	1277	1-4Q	1030	1-4Q	Cont.	Cont.	Cont.
CTC IS Program Management	Various	PEO STRI, Orlando, FL 32826						456	1-4Q	Cont.	Cont.	Cont.
EST 2000 Program Management	Various	PEO STRI, Orlando, FL 32826				95	3-4Q				95	95
MSTC Program Management	Various	PEO STRI, Orlando, FL 32826		28	1-4Q	315	2-4Q				343	335
LVC-IA Program Management	Various	PEO STRI, Orlando, FL 32826						1039	1-4Q	Cont.	Cont.	Cont.
ETC IS Program Management	Various	PEO STRI, Orlando, FL 32826						164	2-4Q		164	399
HITS Program Management	Various	PEO STRI, Orlando, FL 32826		300	1-4Q	100	1-4Q				400	400
SBIR/STTR						938					938	
Subtotal:			4179	1643		2725		2689		Cont.	Cont.	Cont.

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BUDGET ACTIVITY 5 - System Development and Demonstration	PE NUMBER AND TITLE 0604715A - Non-System Training Devices - Eng Dev						PROJECT 241		
Project Total Cost:	192081	32870		32865		28159	Cont.	Cont.	Cont.

Schedule Profile (R4 Exhibit)

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BUDGET ACTIVITY
5 - System Development and Demonstration

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Event Name	FY 08				FY 09				FY 10				FY 11				FY 12				FY 13				FY 14				FY 15			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
OneTESS Development	[Redacted]																															
CTC IS Development	[Redacted]																															
ETC IS (Phase 2) Development & Testing	[Redacted]																															
EST 2000 Weapon Enhancement Development	[Redacted]																															
MSTC MeTER Development	[Redacted]																															
CTIA Version 2.0	[Redacted]																															
CTIA Version 2.1	[Redacted]																															
CTIA Version 2.2	[Redacted]																															
HITS Development	[Redacted]																															
LVC-IA - Increment 1 - EMD	[Redacted]																															
IEDES Development	[Redacted]																															

Schedule Detail (R4a Exhibit)

May 2009

BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604715A - Non-System Training Devices - Eng Dev				PROJECT 241	
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<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>
OneTESS Development	1Q - 4Q							
CTC IS Development			1Q - 4Q					
ETC IS (Phase 2) Development & Testing			2Q - 4Q					
EST 2000 Weapon Enhancement Development		3Q - 4Q	1Q - 2Q					
MSTC MeTER Development	3Q - 4Q	1Q - 4Q	1Q					
CTIA Version 1.6								
CTIA Version 2.0	2Q							
CTIA Version 2.1		4Q						
CTIA Version 2.2			4Q					
CTIA Version 2.3				4Q				
HITS Development	1Q - 4Q	1Q - 4Q						
LVC-IA - Increment 1 - EMD			1Q - 4Q	1Q - 4Q				
LVC-IA - Increment 2 - EMD					1Q - 4Q	1Q - 4Q		
LVC-IA - Increment 3 - EMD							1Q - 4Q	1Q - 4Q
IEDES Development	3Q - 4Q	1Q - 2Q						

ARMY RDT&E COST ANALYSIS (R3)

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BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
5 - System Development and Demonstration			0604715A - Non-System Training Devices - Eng Dev							573		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Congressional Add Center of Excellence for Military Operations in Urban Terrain and Cultural Trainin	TBS	PEO STRI, Orlando, FL 32826				2990	3-4Q				2990	
Subtotal:						2990					2990	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
PEO STRI Labor		PEO STRI, Orlando, FL 32826		1635	1-4Q	1550	1-4Q	1654	1-4Q	Cont.	Cont.	
FCS Labor		PEO STRI, Orlando, FL 32826		376	1-4Q	388	1-4Q	396	1-4Q	Cont.	Cont.	
SBIR/STTR						11					11	

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BUDGET ACTIVITY 5 - System Development and Demonstration	PE NUMBER AND TITLE 0604715A - Non-System Training Devices - Eng Dev						PROJECT 573		
Subtotal:		2011		1949		2050	Cont.	Cont.	
Project Total Cost:		2011		4939		2050	Cont.	Cont.	

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BUDGET ACTIVITY 5 - System Development and Demonstration	PE NUMBER AND TITLE 0604715A - Non-System Training Devices - Eng Dev			PROJECT 587	
COST (In Thousands)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
587 ARMY DEVELOP CTIA/TENA CAPABILITY	480	495			975

A. Mission Description and Budget Item Justification: This project funds the Joint NonKinetic Effects Model (JNEM)-Joint Conflict and Tactical Simulation (JCATS) Interoperability. To implement a robust and stable interface between the JNEM and JCATS model. Exercise software developed and upgraded is valid for training and includes all items approved by the Exercise Director and Commanders Training Objectives. Implementation of a JNEM-JCATS interface contributes to numerous mitigation issues: capability to provide training feedback in Information Operations (IO), Capability to provide improved Host Nation Representation, Capability to plan Human Intelligence (HUMINT), Capability to incorporate Non-Government Organizations (NGO), Private Voluntary Organizations (PVO), Multi-National Corporations (MNC), and US Forces Civil Affairs Higher Headquarters that Contribute to Stable Operations, and Capability to adequately replicate Other Government Agency (OGA) interaction with the Brigade Combat Team Staff.

<u>Accomplishments/Planned Program:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
FY08-09: Continue Development of JNEM for training	480	482	
Small Business Innovative Research/Small Business Technology Transfer Programs		13	
Total	480	495	

B. Other Program Funding Summary Not applicable for this item.

C. Acquisition Strategy Not applicable for this item.