

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)	February 2006
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BUDGET ACTIVITY 5 - System Development and Demonstration		PE NUMBER AND TITLE 0604746A - Automatic Test Equipment Development							
COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	9074	2221	8136	4986	11792	12022	12169	Continuing	Continuing
L59 DIAGNOST/EXPERT SYS DE	7988	53	5451	1472	8184	8355	8426	Continuing	Continuing
L65 Test Equipment Development	1086	2168	2685	3514	3608	3667	3743	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program element (PE) provides for development and testing of general-purpose test equipment; advanced technology test and measurement techniques, standards, and systems; and state-of-the-art diagnostics and prognostics technology, software, and systems to support the increasingly complex electronic components of the Army's new and upgraded weapon systems. It focuses on implementation of commercial test and diagnostic technologies across multiple weapon platforms to minimize the cost of troubleshooting and maintenance of Army equipment in the field.

This PE funds development and evolution of general-purpose automatic test and diagnostic equipment and the enhancements required to overcome deficiencies and voids in organic test and diagnostic capabilities and to ensure the operational readiness, accuracy, effectiveness, and safety of Army combat and combat support systems. Modular, reconfigurable automatic and semi-automatic systems are developed under this program to satisfy weapon system test and diagnostics requirements. The Next Generation Automatic Test System (NGATS), also known as the Base Shop Test Facility (BSTF) (V)6, currently under development will provide state-of-the-art test and diagnostic capabilities to support current and future weapon systems. The NGATS will replace several aging automatic test systems which are becoming prohibitively expensive to operate and maintain. This program also provides for continued development and improvement of measurement equipment with emphasis on incorporation of digital electronics and tailoring of configurations to improve deployability, mobility, and survivability of the support equipment and to reduce the logistics burdens associated with maintaining Army combat systems in wartime and contingency operations. Artificial intelligence and anticipatory maintenance applications are being developed to support the integration of self-diagnostic capabilities in Army weapons and support systems. The goal of these efforts is to reduce logistics burdens and improve readiness by minimizing the need for external testers and improving the troubleshooting abilities of soldiers in the field.

The Army's participation in the Agile Rapid Global Combat Support (ARGCS) Advanced Concept Technology Demonstration (ACTD) is being funded under this PE. The ARGCS ACTD is developing a common automatic test systems architecture that will enhance portability of all Services' test program sets and reduce Defense expenditures for test equipment and personnel.

FY07 funding in this program continues to support development in accordance with DoD and Army policy of the Army Standard Next Generation Automatic Test System (NGATS), which will improve deployability and mobility of test and diagnostic equipment and replace automated equipment currently supporting the Abrams and Bradley. It will also develop or significantly modify test equipment to satisfy modular force and homeland security support requirements that cannot be accommodated with test equipment currently available in the commercial marketplace.

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	FY 2005	FY 2006	FY 2007	
<u>B. Program Change Summary</u>				
Previous President's Budget (FY 2006)	8748	54	7912	
Current BES/President's Budget (FY 2007)	9074	2221	8136	
Total Adjustments	326	2167	224	
Congressional Program Reductions		-10		
Congressional Rescissions		-23		
Congressional Increases		2200		
Reprogrammings	326			
SBIR/STTR Transfer				
Adjustments to Budget Years			224	
FY06: Congressional add to support continuation of the Next Generation Automatic Test System (NGATS) development effort.				

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COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost																				
L59 DIAGNOST/EXPERT SYS DE	7988	53	5451	1472	8184	8355	8426	Continuing	Continuing																				
<p>A. Mission Description and Budget Item Justification: This project funds development of and system enhancements for the Next Generation Automatic Test System (NGATS). The NGATS, also known as the Base Shop Test Facility (BSTF) (V)6, is a general-purpose automatic test system that will provide test and diagnostic capabilities required to support current and future weapons and combat support systems and will facilitate retirement of aging and obsolete test equipment that is imposing increasing logistics and operations and support cost burdens. This project provides for continuing efforts to upgrade and improve general-purpose automatic test equipment to satisfy test and diagnostic requirements of the Army's new and upgraded weapon systems; development and adaptation of automatic test equipment required to overcome existing deficiencies and voids in organic test and diagnostic capabilities; development and testing of common procedures utilizing existing test program sets and software applications; and market surveys of commercially available test equipment, methods, and procedures to determine applicability to Army requirements. The test and diagnostic systems and procedures developed under this project are essential for ensuring the operational readiness, accuracy, and effectiveness of the Army's warfighting systems. This project also funds the Army's participation in the Agile Rapid Global Combat Support (ARGCS) Advanced Concept Technology Demonstration (ACTD) which is developing a common automatic test systems architecture that will enhance portability of all Services' test program sets and reduce Defense expenditures for test equipment and personnel.</p>																													
<u>Accomplishments/Planned Program</u>						<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>																					
FY05-FY07: Develops and tests a rapidly deployable automatic test system.						5399	53	4951																					
FY05-FY07: Provides technical input and evaluates proposals/specifications for ARGCS ACTD.						500	0	500																					
FY05: Developed and evaluated new software applications for the IFTE.						2089	0	0																					
Total						7988	53	5451																					
<p>B. Other Program Funding Summary</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;"></td> <td style="text-align: center; padding: 5px;">FY 2005</td> <td style="text-align: center; padding: 5px;">FY 2006</td> <td style="text-align: center; padding: 5px;">FY 2007</td> <td style="text-align: center; padding: 5px;">FY 2008</td> <td style="text-align: center; padding: 5px;">FY 2009</td> <td style="text-align: center; padding: 5px;">FY 2010</td> <td style="text-align: center; padding: 5px;">FY 2011</td> <td style="text-align: center; padding: 5px;">To Compl</td> <td style="text-align: center; padding: 5px;">Total Cost</td> </tr> <tr> <td style="padding: 5px;">OPA3, MB4000, Integrated Family of Test Equipment (IFTE)</td> <td style="text-align: center; padding: 5px;">74065</td> <td style="text-align: center; padding: 5px;">21474</td> <td style="text-align: center; padding: 5px;">47789</td> <td style="text-align: center; padding: 5px;">75587</td> <td style="text-align: center; padding: 5px;">93244</td> <td style="text-align: center; padding: 5px;">81829</td> <td style="text-align: center; padding: 5px;">75173</td> <td style="text-align: center; padding: 5px;">CONT</td> <td style="text-align: center; padding: 5px;">CONT</td> </tr> </table>											FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost	OPA3, MB4000, Integrated Family of Test Equipment (IFTE)	74065	21474	47789	75587	93244	81829	75173	CONT	CONT
	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost																				
OPA3, MB4000, Integrated Family of Test Equipment (IFTE)	74065	21474	47789	75587	93244	81829	75173	CONT	CONT																				
<p>C. Acquisition Strategy This developmental project consists of cooperative in-house and competitive and sole-source contractual actions. When the necessary expertise and capability are available within the Department of Defense, services required for the individual development projects are ordered from the government source; otherwise commercial contracts are used. Equipment required for developmental projects is obtained by contract from the commercial supplier. Developmental efforts for the Next Generation Automatic Test System (NGATS) are being completed under a sole-source contract awarded to the prime contractor for the Integrated Family of Test Equipment off-</p>																													

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<p>platform testers. NGATS will follow an evolutionary acquisition strategy using spiral development. The NGATS Increment 1 will replace the Direct Support Electrical Systems Test Set (DSESTS). Increments 2 and 3 will replace the BSTF (V) 3 and BSTF (V) 5 systems respectively.</p>		

ARMY RDT&E COST ANALYSIS (R3)										February 2006		
BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
5 - System Development and Demonstration			0604746A - Automatic Test Equipment Development							L59		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Prototype Development	SS/CPFF	Northrop Grumman, Rolling Meadows, IL	9420	2092	2Q	0		1157	2Q	Continue	0	Continue
Hardware Development	Various	Various	45954	1046	1-4Q	0		861	2Q	Continue	Continue	Continue
Software Development - IFTE	Various	Various	2147	2092	2Q	0		861	2Q	Continue	Continue	Continue
Subtotal:			57521	5230		0		2879		Continue	Continue	Continue
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Project Management		Various	41250	2140	1-4Q	53	1-4Q	1398	1-4Q	Continue	0	Continue
Other Direct		Various	888	502	1-4Q	0		446	1-4Q	Continue	Continue	Continue
Subtotal:			42138	2642		53		1844		Continue	Continue	Continue
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Operational Testing	Various	Various	2814	0		0		200	2Q	Continue	Continue	Continue
Developmental Testing	Various	Various	481	116	2Q	0		528	2Q	Continue	Continue	Continue
Subtotal:			3295	116		0		728		Continue	Continue	Continue
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0									

ARMY RDT&E COST ANALYSIS (R3)							February 2006			
BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT		
5 - System Development and Demonstration		0604746A - Automatic Test Equipment Development						L59		
Project Total Cost:		102954	7988		53		5451		0	0

Schedule Profile (R4 Exhibit)																		February 2006																	
BUDGET ACTIVITY 5 - System Development and Demonstration								PE NUMBER AND TITLE 0604746A - Automatic Test Equipment Development																		PROJECT L59									
Event Name								FY 05				FY 06				FY 07				FY 08				FY 09				FY 10				FY 11			
								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
BSTF (V)6 PROTOTYPE DEVELOPMENT																																			
BSTF (V)6 SYSTEM DEV & DEMONSTRATION (SDD), CONTINUED IN FY07																																			
BSTF (V)6 TESTING (INCREMENT 1)																																			
BSTF (V)6 SYSTEM DEV & DEMONSTRATION (SDD) (INCREMENT 2)																																			
BSTF (V)6 TPS COMPATIBILITY TESTING, CONTINUED IN FY07																																			

Schedule Detail (R4a Exhibit)					February 2006		
BUDGET ACTIVITY 5 - System Development and Demonstration		PE NUMBER AND TITLE 0604746A - Automatic Test Equipment Development				PROJECT L59	
<u>Schedule Detail</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
BSTF (V)6 PROTOTYPE DEVELOPMENT	1-4Q	1-4Q	1-4Q				
BSTF (V)6 SYSTEM DEV AND DEMO (SDD) (INCREMENT 1)	1-4Q		1-4Q	1-3Q			
BSTF (V)6 TESTING (INCREMENT 1)			1-4Q	1-4Q			
BSTF (V)6 TPS COMPATIBILITY TESTING	1-4Q		1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
BSTF (V)6 SYSTEM DEV AND DEMO (SDD) (INCREMENT 2)				4Q	1-4Q	1-4Q	1-4Q

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BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604746A - Automatic Test Equipment Development				PROJECT L65		
COST (In Thousands)		FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
L65	Test Equipment Development	1086	2168	2685	3514	3608	3667	3743	Continuing	Continuing
<p>A. Mission Description and Budget Item Justification: This project supports development and demonstration of state-of-the-art general-purpose test, measurement, and diagnostic equipment (TMDE), and it provides for feasibility studies, market research, inventory analyses, bid sample testing, and prototyping to support TMDE acquisitions. Primary efforts under this project include improvement of test and measurement equipment performance envelopes via preplanned product improvements (P3I), development and validation of test procedures, evaluation of commercial and nondevelopmental TMDE with potential to meet weapon system maintenance requirements, and development and evaluation of advanced technology and higher reliability electronic test equipment. Preplanned product improvements are underway to current test and measurement systems to overcome deficiencies and voids in existing organic capabilities and to ensure the operational readiness, accuracy, effectiveness, and safety of Army weapons and combat support systems. These improvements will employ reconfigurable open electronics architecture and computer-based instrumentation wherever feasible and will be focused on reducing test equipment footprints to improve deployability and mobility in the area of operations.</p>										
Accomplishments/Planned Program						FY 2005	FY 2006	FY 2007		
FY05 & FY07: Develops hardware via preplanned product improvements to enhance TMDE systems' performance capabilities.						236	0	541		
FY05 & FY07: Provides test and integration hardware developed for preplanned product improvements.						320	0	733		
FY05 - FY07: Develops, evaluates, and integrates test and measurement equipment.						360	2168	986		
FY05 & FY07: Continues to develop and evaluate test and calibration procedures.						70	0	195		
FY05 & FY07: Performs market research and evaluation of commercial equipment and develops performance specifications for acquisitions.						100	0	230		
Total						1086	2168	2685		
B. Other Program Funding Summary		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
OPA3, N10000, Calibration Sets Equipment		13250	0	2026	0	0	0	0	0	15276
OPA3, N11000, Test Equipment Modernization		8475	464	11827	19302	22530	22607	19230	CONT	CONT
<p>C. Acquisition Strategy Projects are focused on use of commercial and nondevelopmental item technologies. When programmatic and engineering expertise and capability are available within the Department of Defense, services required for the individual development projects are acquired from the government source; otherwise, commercial services</p>										

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<p>contracts are used to provide these capabilities. Equipment required for development projects is obtained from the commercial supplier. Candidate commercial equipment and nondevelopmental items are identified and evaluated through market research and government testing and evaluation.</p>		

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BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
5 - System Development and Demonstration			0604746A - Automatic Test Equipment Development							L65		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	Various	Various	5573	375	1-2Q	1668	2Q	1012	1-2Q	Continue	0	Continue
Procedures Development and Evaluation	Various	Various	1848	70	1-3Q	0		195	1-3Q	Continue	Continue	Continue
Government Engineering		Various	1196	144	1-4Q	0		332	1-4Q	Continue	Continue	Continue
Subtotal:			8617	589		1668		1539		Continue	Continue	Continue
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Technical Support Services	Various	Various	638	100	2Q	500	1-4Q	229	2Q	Continue	0	Continue
Subtotal:			638	100		500		229		Continue	0	Continue
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Testing	Various	Various	802	250	1-2Q	0		579	1-2Q	Continue	Continue	Continue
Subtotal:			802	250		0		579		Continue	Continue	Continue
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management Personnel		Various	397	147	1-4Q	0		338	1-4Q	Continue	Continue	Continue
Subtotal:			397	147		0		338		Continue	Continue	Continue

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Project Total Cost:		10454	1086		2168		2685		Continue	Continue	Continue

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