

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE								
5 - System Development and Demonstration		0604823A - FIREFINDER								
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	43711	54542	77279	31424	9860	103				216919
L86 LIGHTWEIGHT COUNTER MORTAR RADAR (LCMR)	22757	16747	7926							47430
L87 LONG RANGE COUNTERFIRE RADAR			11	101	109	86				307
L88 ENHANCED AN/TPQ 36	20954	37795	69342	31323	9751	17				169182

A. Mission Description and Budget Item Justification: This Program funds design, development and test of primary target acquisition and counterfire radars to automatically detect, locate and classify hostile indirect fire weapons (mortars, artillery, rockets, and missiles). This PE directly supports the prioritization, tracking, and locating of targets, and dissemination of that information for simultaneous attack of multiple threats. It provides the Warfighter with continuous and responsive counterfire target acquisition systems for all types and phases of military operations. Project L85, Phoenix Battlefield Sensor System AN/TPQ-47, was re-structured in FY05 to an alternate contract conclusion due to technical challenges and competing near term radar performance shortfalls identified in Operation Iraqi Freedom (OIF). Project L86, Advanced Lightweight Counter Mortar Radar (A-LCMR), will provide 360 degree coverage and be used to detect, locate and report hostile locations of enemy indirect firing systems out to a range of 10 kilometers. Project L88, Enhanced AN/TPQ-36 (EQ-36), is a highly mobile radar system that will leverage the latest in technology design to accelerate technology infusion and increase range while improving False Alarm Rate, reducing obsolescence and increasing reliability. EQ-36 will provide 90 degree coverage and extended range, with an incremental development to increase detection capability to 360 degrees. The EQ-36 will be interoperable with Firefinder and future Battle Command Systems.

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<u>B. Program Change Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	45405	70151	62256	52527
Current BES/President's Budget (FY 2008/2009)	43711	54542	77279	31424
Total Adjustments	-1694	-15609	15023	-21103
Congressional Program Reductions	-1694	-15609		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
Adjustments to Budget Years			15023	-21103

Change Summary Explanation: FY2007 Project DL88 decrease of \$15208 due to late 4Q EQ-36 Contract Award.

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BUDGET ACTIVITY 5 - System Development and Demonstration		PE NUMBER AND TITLE 0604823A - FIREFINDER							PROJECT L86	
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
L86 LIGHTWEIGHT COUNTER MORTAR RADAR (LCMR)	22757	16747	7926							47430

A. Mission Description and Budget Item Justification: The AN/TPQ-48(V)3 Lightweight Counter Mortar Radar (LCMR) will provide 360 degrees of azimuth coverage and be used to detect, locate, and report hostile locations of enemy indirect firing systems. It will cover a range of 500 meters to 10 kilometers and provide observed fires from friendly units. The AN/TPQ-48(V)3 shall be a digitally connected, day/night mortar, cannon, and rocket locating system. The AN/TPQ-48(V)3 will be a spiral enhancement to the existing AN/TPQ-48(V)2. The LCMR was originally designed to operate as a stand alone capability for Special Forces and is man portable when disassembled. This capability has been fielded to Operation Iraqi Freedom (OIF) as a Limited Procurement Urgent (LPU) capability.

FY2008 funds the continuation of primary development of thirteen (13) AN/TPQ-48(V)3 test articles.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Primary development of thirteen (13) test articles to include non recurring engineering and Program Management support.	22096	9958	4445	
Develop/build Radar Environmental Simulator (RES) to simulate system hardware/software and emulate the radar performance.		2082	1063	
Activities to support Development Test/Operational Test. Efforts include conduct of Live Ammunition Test at Yuma Proving Ground (YPG), Limited User Test, ammunition and manpower to support system test.	661	4236	2418	
Small Business Innovative Research/Small Business Technology Transfer Programs		471		
Total	22757	16747	7926	

<u>B. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
SSN: B05201 Lightweight Counter Mortar Radar	94638	16260	43893	44051	33986	34492	35254	36140	Continuing	Continuing

Comment:

C. Acquisition Strategy The Lightweight Counter Mortar Radar (LCMR) prototype was developed as a Special Operations Command (SOCOM) program under the Office of Special Technology, Broad Agency Announcement (BAA). The LCMR Engineering Development Program was also SOCOM funded which resulted in to a functional system. The LCMR leverages the SOCOM developed program and serves as a spiral development effort to provide greater range, accuracy, interoperability and transportability to support Army's requirements. Acquisition Strategy Approval was obtained in May 06 and a contract was awarded in Sep 06 to spiral the existing system into the Army's objective system.

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ARMY RDT&E COST ANALYSIS (R3)

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BUDGET ACTIVITY			PE NUMBER AND TITLE									PROJECT		
5 - System Development and Demonstration			0604823A - FIREFINDER									L86		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Dev	SS/CPFF	SRCTec, North Syracuse, NY		18307	4Q	7639	2Q	3335	2Q			Cont.	29281	
Radar Environmental Simulators (RES)	TBD	TBD				2082	2Q	1063	2Q			Cont.	3145	
Systems Engineering Contractor	SS/T&M	Various		1570	1-3Q	605	1-2Q	300	1-2Q			Cont.	2475	
Systems Engineering Government	MIPR	CERDEC, Fort Monmouth, NJ		700	1-2Q	400	1-2Q	350	1-2Q				1450	
SBIR/STTR Transfers						471							471	
Subtotal:				20577		11197		5048				Cont.	36822	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Development Support (Government)	MIPR	Various		161	1-2Q	145	1-2Q					Cont.	306	
Subtotal:				161		145						Cont.	306	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test Support (Contractor)	MIPR	TBD				478	2Q	240	1Q			Cont.	718	
Developmental Test & Evaluation	MIPR	Yuma, AZ/WSMR, NM				3105	2-3Q	1786	1-2Q			Cont.	4891	
Test Support (Government)	MIPR	Various		250	2Q	250	2Q	154	1-2Q			Cont.	654	
Subtotal:				250		3833		2180				Cont.	6263	

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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management (Contractor)	C/FP	Various		890	1-3Q	752	1-3Q					Cont.	1642	
Program Management	In House	PM NV/RSTA, Fort Monmouth, NJ		435	1-4Q	444	1-4Q	342	1-4Q			Cont.	1221	
Program Management (Government Matrix)	MIPR	Various		444	1-2Q	376	1-2Q	356	1-2Q			Cont.	1176	
Subtotal:				1769		1572		698				Cont.	4039	
Project Total Cost:				22757		16747		7926				Cont.	47430	

Schedule Profile (R4 Exhibit)

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Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	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
(1) Acquisition Strategy Approval			▲ ₁																													
Development of AN/TPO-48(V)3 Prototypes																																
Development Test/Operational Test (DT/OT)																																
Production (V2/V3)																																
(2) First Unit Equipped (FUE) (V2)																																

Schedule Detail (R4a Exhibit)

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<u>Schedule Detail</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>	<u>FY 2012</u>	<u>FY 2013</u>
Acquisition Strategy Approval	3Q							
Development of AN/TPQ-48(V)3 Prototypes	4Q	1Q - 4Q	1Q					
Development Test/Operational Test (DT/OT)			2Q - 3Q					
Production (V2/V3)	2Q - 4Q	1Q - 4Q						
First Unit Equipped (FUE) (V2)		2Q						

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BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604823A - FIREFINDER					PROJECT L88		
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost	
L88 ENHANCED AN/TPQ 36	20954	37795	69342	31323	9751	17				169182	

A. Mission Description and Budget Item Justification: The Enhanced AN/TPQ-36 (EQ-36) is a highly mobile radar system designed to classify targets for automatic first-round location of mortar, cannon and rocket enemy fires and to provide observed fires from friendly units. The EQ-36 will provide 90 degree coverage, with a shorter range 360 degree coverage for mortars. The EQ-36 will provide 32KM range coverage for cannons and 60KM for rockets. This program will leverage the latest in technology design to provide increased range, reduced crew size, as well as increased reliability, availability, and maintainability. The EQ-36 will provide digital communications and be interoperable with Firefinder and future Battle Command Systems. The system will be capable of drive-on/drive off C-130 and will be mounted on standard Army vehicles.

FY2008 funds:

- a. Continuation of development and manufacture of five (5) Non-Recurring Engineering (NRE) Increment 1 systems
- b. Design and integration of Increment 2

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Primary development and test of five (5) Enhanced AN/TPQ-36 NRE Increment 1 systems, and associated Program Management support to meet the Army's counterfire requirements.	17204	35981	66344	25410
Increment 2 Design and Integration			2998	5913
Develop/Build Radar Environmental Simulator (RES) to simulate system hardware/software and emulate the radar performance.	3750	750		
Small Business Innovative Research/Small Business Technology Transfer Programs		1064		
Total	20954	37795	69342	31323

<u>B. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
B05310 Enhanced AN/TPQ-36				107797	150827	175508	263480	251116	Continuing	Continuing

Comment: Existing OPA funding line procures 66 systems through FY13.

C. Acquisition Strategy The Enhanced AN/TPQ-36 (EQ-36) leverages technology developed in the Multi-Mission Radar Advanced Technology Objective (ATO) program incorporating the latest antenna technology into the EQ-36. In order to field the EQ-36 capability to the Warfighter in the most expeditious manner with the least amount of risk, the EQ-36 will be produced in two increments based on two tiers of technical threshold requirements. Increment 1 capabilities are planned to be fielded as a replacement to the

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AN/TPQ-36 radar system. Increment 2 capabilities will provide increased performance over Increment 1 and will meet all of the user's requirements. A contract was awarded in 4QFY06 based on full and open competition and is currently under Government Accounting Office (GAO) audit. Resolution to be completed by 16 Jan 07. The system will be fielded in two Initial Production lots of six (6) systems each in FY09 and FY10, followed by a full rate production contract scheduled for award in FY11. The system is planned to eventually replace all of the AN/TPQ-36 and AN/TPQ-37 legacy systems in the fleet.

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPIF	TBD		11000	4Q	31027	1-4Q	64172	1-4Q	22590	1-4Q	Cont.	Cont.	
Ancillary Equipment	MIPR/Requisitions	Various		1032	3-4Q								1032	
Radar Environmental Simulators (RES)	MIPR	Oakridge National Labs, Oak Ridge, TN		3750	3Q	750	3Q						4500	
Systems Engineering (Contractor)	C/FP	Various		1054	2Q	1605	1-2Q	1362	1-2Q	784	1-2Q	Cont.	Cont.	
Systems Engineering (Government)	MIPR	Various		300	1-2Q	309	1Q	350	1-2Q	361	1-2Q	Cont.	Cont.	
SBIR/STTR Transfers						1064							1064	
Subtotal:				17136		34755		65884		23735		Cont.	Cont.	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Source Selection Efforts	MIPR	Various		828	3-4Q							Cont.	Cont.	
Development Support (Government)	MIPR	Various		100	2Q	150	1-2Q	155	1-2Q	159	1-2Q		564	
Development Support (Contractor)	C/FF	Various		190	2Q	398	1-2Q	409	1-2Q	422	1-2Q		1419	
Subtotal:				1118		548		564		581		Cont.	Cont.	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test Support (Government)	MIPR	Various		125	2Q	185	2Q	300	2Q	4845	2Q	Cont.	Cont.	
Subtotal:				125		185		300		4845		Cont.	Cont.	

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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management (Contractor)	C/FP	Various		1074	1-3Q	1000	1-3Q	1225	1-3Q	1018	1-3Q	Cont.	Cont.	
Program Management (Government)	MIPR	Various		421	1-2Q	376	1-2Q	387	1-3Q	398	1-3Q	Cont.	Cont.	
Program Management	In-House	PM NV/RSTA, Fort Monmouth, NJ		1080	1-4Q	931	1-4Q	982	1-4Q	746	1-4Q	Cont.	Cont.	
Subtotal:				2575		2307		2594		2162		Cont.	Cont.	
Project Total Cost:				20954		37795		69342		31323		Cont.	Cont.	

Schedule Profile (R4 Exhibit)

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BUDGET ACTIVITY
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Event Name	FY 06				FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	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
Contract Preparation/Source Selection Activities																																
(1) Special In Process Review (IPR)				▲ 1																												
NRE Increment 1 & System Integration																																
(2) Initial Production (IP) Decision													▲ 2																			
Production																																
Dev Test/Operational Test (DT/OT) Increment 1																																
(3) First Unit Equipped (FUE)																	▲ 3															
NRE Increment 2 & System Integration																																

Schedule Detail (R4a Exhibit)

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<u>Schedule Detail</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>	<u>FY 2012</u>	<u>FY 2013</u>
Contract Preparation/Source Selection Activities	1Q - 4Q							
Special In Process Review (IPR)	4Q							
NRE Increment 1 & System Integration	4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q			
Initial Production (IP) Decision			4Q					
Production				1Q - 4Q				
Dev Test/Operational Test (DT/OT) Increment 1				3Q - 4Q	1Q - 2Q			
First Unit Equipped (FUE)					3Q			
NRE Increment 2 & System Integration			3Q - 4Q	1Q - 4Q	1Q - 4Q	1Q		