

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)							February 2004			
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604820A - RADAR DEVELOPMENT				PROJECT E10		
COST (In Thousands)		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 Cost
E10	SENTINEL	0	0	6107	6393	2503	2599	2055	0	37520
<p>A. Mission Description and Budget Item Justification: The Sentinel, AN/MPQ-64, consists of a High Mobility Multipurpose Wheeled Vehicle (HMMWV) towed radar-based sensor with its prime mover/power, identification friend or foe (IFF), and Forward Area Air Defense (FAAD) Command, Control, and Intelligence (C2I) interfaces. The sensor is an advanced three-dimensional battlefield X-Band air defense phased-array radar with an instrumented range of 40 km. The Sentinel is capable of operating day or night, in adverse weather conditions, in the battlefield environments of dust, smoke aerosols, and enemy countermeasures. It provides 360-degree azimuth coverage for acquisition and tracking. The Sentinel contributes to the digital battlefield by automatically detecting, classifying, identifying, and reporting targets (cruise missiles, unmanned aerial vehicles, rotary wing and fixed wing aircraft). The Sentinel Enhanced Target Range and Classification (ETRAC) Modernization program will improve Sentinel's capability against evolving threats. ETRAC provides the capability for Sentinel to detect and classify small radar cross-section targets, such as cruise missiles and unmanned aerial vehicles. The system provides Forward Area Short Range Air Defense (SHORAD) system information dominance via a digital air picture for support of maneuver forces and critical assets. Without ETRAC, Sentinel would not be able to determine aircraft type or to support manned vs. unmanned determinations to fully support precision engagements beyond visual range. In order to engage at ranges beyond visual, the SHORAD system must detect and track the target at sufficient range to alert, and cue the gunner to the target. The Sentinel Modernization efforts extend the range of Sentinel against reduced radar cross section targets so the gunner will receive a cue with sufficient time to engage at ranges beyond visual. However, cueing alone is not sufficient to support an engagement. The target either must be identified as a foe or must be classified as an engageable target (unmanned) that is a threat to defended assets. The Modernization Program positions Sentinel to determine aircraft type or to support manned versus unmanned determinations to fully support precision engagements beyond visual range. ETRAC, Composite Tracking, and Interface with Joint Integrated Fire Control System Modernization effort supports the Current to Future transition path of the Transformation Campaign Plan (TCP) by ensuring that the Sentinel systems in the field support the acquisition, tracking and classification of targets to enable the SHORAD weapons to engage these targets at maximum effective range.</p> <p>FY05 funding initiates composit tracking and integration (sensor to sensor) to the Joint Identification Technology Development.</p>										
Accomplishments/Planned Program							FY 2003	FY 2004	FY 2005	
Completed ETRAC Prototype Design and Development							0	0	0	
Completed ETRAC Target Classification Prototype Design and Development							0	0	0	
Completed Integration and Test of ETRAC							0	0	0	
Initiate Composite Tracking and Integration to the Joint Identification Technology Development							0	0	6107	

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Accomplishments/Planned Program B(continued)

	FY 2003	FY 2004	FY 2005
Totals	0	0	6107

B. Program Change Summary

	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	0	0	0
Current Budget (FY 2005 PB)	0	0	6107
Total Adjustments	0	0	6107
Congressional program reductions			
Congressional rescissions			
Congressional increases			
Reprogrammings			
SBIR/STTR Transfer			
Adjustments to Budget Years			6107

C. Other Program Funding Summary

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Other Procurement, Army 2 (SSN WK 5053)	31	0	0	0	0	0	0	0	1905
Other Procurement, Army 2 (SSN WK 5057)	39423	21264	7487	7218	15132	24565	28814	Continue	Continue
Spares (SSN BS 9732)	0	0	0	0	0	0	0	0	1819

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<p><u>D. Acquisition Strategy:</u> The Modernization Program awarded a sole source Cost Plus Award Fee (CPAF) contract to the production manufacturer for the transmitter effort. The Modernization Program also awarded an additional sole source Cost Plus Fixed Fee (CPFF) contract to the production manufacturer for the ETRAC efforts during FY00. The ETRAC contract will be executed in three phases. The first phase finalizes the requirement definition. The second phase continues through successful demonstration of prototypes with Key Performance Parameter (KPP) capabilities, and the third phase continues to successful integration and test of target classification capabilities. Continuation of each phase is dependent on the successful completion of the previous phase limiting the risk to the Government. Both the ETRAC and the Transmitter efforts will assure the Total Ownership Costs of the Sentinel are reduced. The program will take advantage of already developed items and certain off-the-shelf technologies to minimize risk while ensuring cost, schedule and performance goals are achieved.</p> <p>Joint Identification, Composite Sensor Net, and Mode V via Composite Tracking will be integrated to interface with the Joint Integrated Fire Control System Modernization effort to allow matching of the embedded Sentinel capabilities with the Joint Integrated Fire Control System and ensures joint interoperability for emerging Homeland Defense and SLAMRAAM specific hostile target identification requirements. Composite Tracking contains both the generation of a composite track and the association of identification technologies to enable high confidence hostile engagements. Joint Identification, Composite Sensor Net, and Mode V ensure matching of current and emerging threats to system capabilities.</p>		

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604820A - RADAR DEVELOPMENT					PROJECT E10		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Development	C/FFP	Hughes Aircraft Co., Fullerton, CA	56836	0		0		0		0	56836	56836
b . Technical requirement definition, corrective action & simulation	MIPR	Various AMCOM contractors/locations	18704	0		0		0		0	18704	0
c . Misc requirements definition, ECM and survivability efforts.	MIPR	Various other agency contractors/locations	5270	0		0		0		0	5270	0
d . Improved Transmitter Modernization Development	SS/CPAF	Raytheon Systems Company , El Segundo, CA	8802	0		0		0		0	8802	8802
e . ETRAC Modernization Requirements Definition, KPP Demo and Target Classification Validation	SS/CPFF	Raytheon Systems Company , El Segundo, CA	13117	0		0		0		0	13117	13554
f . Initiate Joint Identification Technology Development	TBD	TBD	0	0		0		6107		Continue	6107	0
Subtotal:			102729	0		0		6107		Continue	108836	79192

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II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Support Services	MIPR/1095	AMCOM, Redstone Arsenal, AL	14137	0		0		0		0	14137	0
b . Other Agency Support Services	MIPR	Various	2793	0		0		0		0	2793	0
Subtotal:			16930	0		0		0		0	16930	0
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . IOT&E	MIPR/1095	OPTEC, Alexandria, VA	24180	0		0		0		0	24180	0
b . Other/Misc Test and Evaluation Activity	MIPR/1095	Various	7785	0		0		0		0	7785	0
c . Technical Test	MIPR/1095	Redstone Technical Test Center, Redstone Arsenal, AL	1213	0		0		0		0	1213	0
d . ETRAC KPP Demonstration	1095	Various	1421	0		0		0		0	1421	0

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III. Test and Evaluation (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
			34599	0		0		0		0	34599	0	
Subtotal:													
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
a . Product Manager support	MIPR/1095	PM Sentinel/AMCOM	11033	0		0		0		0	11033	0	
b . Contractor Support to Product Manager	FP/CPFF	Vista Tech, Huntsville, AL	185	0		0		0		0	185	0	
c . Contractor Support to Product Manager	CP FF	O2K Contractor Huntsville, AL	180	0		0		0		0	180	0	
Subtotal:			11398	0		0		0		0	11398	0	
Project Total Cost:			165656	0		0		6107		Continue	171763	79192	

Schedule Profile (R4 Exhibit)																						February 2004																					
BUDGET ACTIVITY 5 - System Development and Demonstration												PE NUMBER AND TITLE 0604820A - RADAR DEVELOPMENT																PROJECT E10															
Event Name												FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
												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
ETRAC Mod Kit Development (Block 1A)												ETRAC																															
Transmitter Mod Kit Production																TRANSMITTER MOD KIT PRODUCTION																											
ETRAC Mod Kit Production																				ETRAC MOD KIT PRODUCTION																							
(1) ETRAC MOD Kit Production Contract Award																1																											
(2) Initial ETRAC Retrofit																				2				INITIAL ETRAC RETROFIT FIELDDED SYS																			
ETRAC Fielding																								ETRAC FIELDING																			
ETRAC=(ENHANCED TARGET RANGE AND CLASSIFICATION)																																											

Schedule Detail (R4a Exhibit)						February 2004	
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<u>Schedule Detail</u>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Mod Kit Development							
ETRAC Mod Kit Production Contract Award							
Mod Kit Production Transmitter	1-4Q	1-4Q	1-4Q	1-4Q	1-3Q		
Mod Kit Production ETRAC	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1Q	
Initial ETRAC Retrofit		4Q					
ETRAC Fielding		3-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Initiate Composite Tracking and Integration to the Joint Identification Technology Development			1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
ETRAC = Enhanced Target Range and Classification							