

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2004

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305206A - Airborne Reconnaissance Adv Development**

PROJECT  
**K98**

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
K98	MASINT SENSOR INTEGRATION (JMIP)	11433	4699	5128	5412	5502	5223	5509	0	58680

**A. Mission Description and Budget Item Justification:** This project continues development of advanced tactical reconnaissance and surveillance sensor technologies and develops technology for the on-board fusion of multidiscipline intelligence sensors, i.e. Signals Intelligence (SIGINT), Moving Target Indicator/Synthetic Aperture (MTI/SAR) Radar, and Measure and Signature Intelligence (MASINT). Hyperspectral, multi-spectral, interferometric synthetic aperture radar sensors, advanced target and image exploitation software will be developed for imagery intelligence (IMINT) and MASINT applications. The Hyperspectral Longwave Imager for the Tactical Environment (HyLITE) develops the next generation airborne day/night hyperspectral reconnaissance sensor for the countermining mission, and detection and identification of camouflaged and concealed targets in all terrain environments. The Signals Warfare Project Office will develop MASINT/IMINT technologies for Aerial Common Sensor (ACS). Efforts will be directed toward the development of advanced multi-mode Electrooptic/Infrared (EO/IR), multi-mode MTI/SAR radar, foliage penetration radar, multi-spectral/hyperspectral imageries (MSI/HSI), MASINT on-board fusion and registration, and cueing of the EO/IR/SAR/HSI imaging sensor. MASINT was provided a supplemental fund called Defense Emergency Response Fund (DERF), as a non-add, for \$2.6M in FY 2002.

FY05 funds continue MTI/SAR and MSI/HSI technology development and supports the integration of these for system demonstrations.

This system supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

## Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
-Conducted Critical Design Review (CDR) of the Hyperspectral Long Wave Imager for the Tactical Environment (HyLITE) sensor. Completed system integration and initial testing. Participated in joint spectral data collection and exercises of various terrain and environmental backgrounds for algorithm development. Developed and integrated multiple algorithm exploitation and processing techniques for advanced spectral detection and recognition.	1691	0	0
-Spiral development and integration of multi-mode MTI/SAR/MSI/HSI/EO/IR capabilities for the ACS program	4726	4699	5128
- Sensor development and improvements of the HyLITE system for application in the tactical environment. Conduct integration of HyLITE with the Night Vision Electronic Sensor Directorate test bed aircraft. Conduct lab characterization, flight tests, data collections, and field experimentations.	1924	0	0

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<b>Accomplishments/Planned Program B(continued)</b>	FY 2003	FY 2004	FY 2005
-Addressed the Supportability/obsolesence issues for AN/PPS-5D Ground Sensor Radar	970	0	0
-Provided ILS and engineering support for REMBASS II system	1028	0	0
Initiated effort for imaging capability for Military Utility Assessment at the 2nd SBCT	1094	0	0
<b>Totals</b>	<b>11433</b>	<b>4699</b>	<b>5128</b>

<b>B. Program Change Summary</b>	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	11438	4751	5094
Current Budget (FY 2005 PB)	11433	4699	5128
Total Adjustments	-5	-52	34
Congressional program reductions			
Congressional rescissions		-44	
Congressional increases			
Reprogrammings	-5	-8	
SBIR/STTR Transfer			
Adjustments to Budget Years			190

<b>C. Other Program Funding Summary</b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	ToComp	TotalCost
0203744A/028 ACS	46835	102316	143911	150071	242772	23088	26224	Continue	Continue
A02005 Aerial Common Sensor	0	0	0	0	0	232549	225484	Continue	Continue

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<p><b><u>D. Acquisition Strategy:</u></b> The HyLITE system acquisition strategy provided for the award of an R&amp;D effort beginning in FY 1999 under best value full and open competition procedures. Data collection efforts to support analytic studies began in FY1998 using existing sensor and hardware integrated on a NVESD testbed aircraft.</p> <p>The ACS Technology Demonstration (TD) phase completed in 3QFY03. The System Development and Demonstration (SDD) phase, which will be a competitive solicitation with contract award scheduled in 3QFY04, will develop MTI/SAR/MSI/HSI and multi-sensor technologies identified and found critical to the Aerial Common Sensor (ACS) program based upon the ACS Concept Exploration (CE) and TD phase.</p> <p>PM Robotic and Unmanned Sensors received a FY03 Congressional Plus-up and awarded multiple FFP contracts to address the following: AN/PPS-5D Ground Sensor Radar (GSR) supportability/obsolescence issues; engineering support for the REMBASS II system; and awarded a TM contract to provide an imaging capability for a Military Utility Assessment being conducted by 2nd SBCT.</p>		

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
7 - Operational system development					0305206A - Airborne Reconnaissance Adv Development					K98		
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 . Night Vision Development Support; HyLITE	C/CPFF	BAE Systems, NY	10086	1456	3Q	0		0		0	11542	11542
b . ACS Development Support; Hyperspectral Imagery	C-CPFF	BAE Systems, NY	0	1444	3Q	0		0		0	1444	1444
c . ACS Technology contract for MTI/SAR/MIS/HSI/EO/IR	C-CPAF	Lockheed Martin, Denver, CO	2201	2240	1-2Q	0		0		0	4441	4443
d . ACS Technology contract for MTI/SAR/MIS/HSI/EO/IR	C-CPAF	Northrup Grumman, Baltimore, MD	2202	2239	1-2Q	0		0		0	4441	4444
e . ACS Technology contract for MTI/SAR/MIS/HSI/EO/IR	C-CPAF	TBD	0	0		4241	3Q	4624	1-2Q	Continue	8865	Continue
f . AN-PPS-5D	FFP	Lockheed Martin (SRC), Syracuse, NY	0	599	3Q	0		0		0	599	599
g . REMBASS II	FFP	Lockheed Martin (L3Comm) Camden, NJ	0	304	4Q	0		0		0	304	304
h . REMBASS II Laptops	FFP	GTSI Corp, Chantilly, VA	0	27	3Q	0		0		0	27	27
i . EO/IR	T&M	Custom Man & Engr, St. Petersburg, FL	0	1009	3Q	0		0		0	1009	1009

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I. Product Development (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
			14489	9318		4241		4624		Continue	32672	Continue
Subtotal:												
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 . ACS System Engineering; Hyperspectral Imagery	C/T&M	EOIR, Fredricksburg VA	1615	125	2Q	0		0		0	1740	1740
b . ACS Technical Support; Hyperspectral Imagery	C/T&M	IDA; Washington, DC	260	50	3Q	0		0		0	310	310
c . NV Technical Support HyLITE	C/T&M	Northrop Grumman, Los Angeles, CA	0	100	2Q	0		0		0	100	100
d . ACS Technical Support; Hyperspectral Imagery	C/T&M	Northrup Grumman, Los Angeles, CA	0	100	2Q	0		0		0	100	100
e . CME/REMBASS II	MIPR	CECOM, I2WD	0	95	3Q	0		0		0	95	95
f . Program & Eng Spt	MIPR	TSM Prophet	0	150	4Q	0		0		0	150	150
Subtotal:			1875	620		0		0		0	2495	2495

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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 . ACSTest & Demonstration; Hyperspectral Imagery	MIPR	CECOM; NVSED, NJ	922	305	2Q	0		0		0	1227	1227
b . ACS Integration and Demonstration of MTI/SAR/MSI/HSI/EO/IR technologies	C-CPAF and MIPR	Multiple	0	108	1-2Q	288	1-2Q	317	1Q	Continue	Continue	Continue
c . REMBASS II DT & Reliability	MIPR	Aberdeen Test Center, Aberdeen, MD	0	606	3Q	0		0		0	606	606
d . REMBASS II DT Test Spt	MIPR	Multiple	0	108	3-4Q	0		0		0	108	108
Subtotal:			922	1127		288		317		Continue	Continue	Continue

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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 . NV Program & Engineering Support; HyLITE	MIPR	CECOM; NVESD	1265	35	2Q	0		0		0	1300	1300
b . ACS Program & Engineering Support; MTI/SAR/MSI/HSI/EO/IR	MIPR	CECOM; I2WD	468	333	1-2Q	170	2Q	187	1Q	Continue	Continue	Continue
Subtotal:			1733	368		170		187		Continue	Continue	Continue
Project Total Cost:			19019	11433		4699		5128		Continue	Continue	Continue

Schedule Detail (R4a Exhibit)						February 2004	
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<u><b>Schedule Detail</b></u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
HyLITE Algorithm Design/Implementation (day/night) and Analysis	1-4Q						
HyLITE Aircraft Integration	4Q						
HyLITE Test and Demonstrate	1-4Q						
Imaging Capability for Military Utility Assessment effort	3-4Q	1-4Q					
Support to REMBASS II effort	3-4Q	1-3Q					
Supportability/obsolescence issues addressed concerning AN/PPS-5D (GSR)	3-4Q	1-3Q					
ACS MTI/SAR/MSI/HSI/EO/IR technology demos	3-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q