

EXHIBIT R-2, RDT&E Budget Item Justification						DATE: February 2007		
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						R-1 ITEM NOMENCLATURE 0205601N, HARM IMPROVEMENT		
COST (\$ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	87.212	99.829	34.762	7.993	5.422	5.154	5.236	5.318
1780 HARM IMPROVEMENT	3.647	1.876	1.989	1.992	1.944	1.878	1.904	1.932
2185 AARGM	76.442	91.976	32.773	6.001	3.478	3.276	3.332	3.386
3056 ADVANCED PRECISION KILL WEAPON SYSTEM	2.096							
9999 CONGRESSIONAL ADDS	5.027	5.977						

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) HIGH-SPEED ANTI-RADIATION (HARM) IMPROVEMENT: The High-speed Anti-Radiation Missile (HARM) is a joint service program with the Air Force (NAVY lead). The program commenced production in FY1983. Program Element 0205601N was used until FY 1990 to develop and test one hardware and two software upgrades to the HARM (AGM-88B, Block III & AGM-88C, Block IV) as Engineering Change Proposals (ECPs). Another ECP software program (Block IIIA & V) was developed (FY1996 through FY1999) to modify HARM software in order to meet operational requirements. The Block V tactical software upgrade gives HARM improved geographic specificity and improved capability against advanced waveforms. HARM Block IIIA/V software was distributed to the Fleet in FY2000. HARM Improvement includes efforts to conduct Foreign Military Exploitation (FME) analysis and engineering to exploit vulnerabilities of foreign anti-radar threats. HARM Improvement includes funding for threat assessment, operational updates, and integration efforts.

(U) ADVANCED ANTI-RADIATION GUIDED MISSILE (AARGM): AARGM is an ACAT-1C acquisition program in System Development & Demonstration (SD&D) to upgrade the AGM-88 HARM missile with multi-mode / multi-spectral guidance and targeting capability. It also incorporates the capability to receive national broadcast data and transmit weapon impact assessments (demonstrated in Quick Bolt ACTD). An AARGM System Development and Demonstration (SD&D) commenced in FY2003. The AARGM program plans production of 1,879 missiles; 83 Low Rate Initial Production (LRIP) and 1,796 Full Rate Production modification kits.

(U) DIRECT ATTACK GUIDED ROCKET/APKWS: Formerly known as the Advanced Precision Kill Weapons System (APKWS), APKWS II was an Army System Development & Demonstration (SD&D) program to develop a low cost Semi Active Laster (SAL) precision guidance section for existing 2.75 inch unguided rockets.

(U) The Army did not include APKWS in POM08 submission, therefore the APKWS program is being curtailed. Efforts will be made to close out the contract through FY07.

B. PROGRAM CHANGE SUMMARY

Funding:	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget:	84.569	99.208	30.994	5.766
Current President's Budget :	<u>87.212</u>	<u>99.829</u>	<u>34.762</u>	<u>7.993</u>
Total Adjustments	2.643	0.621	3.768	2.227
Summary of Adjustments				
Congressional Reductions	-1.800	-0.379		
Congressional Rescissions				
Congressional Decreases		-5.000		
Congressional Increases		6.000		
Economic Assumptions			0.083	0.114
Miscellaneous Adjustments	<u>4.443</u>		<u>3.685</u>	<u>2.113</u>
Subtotal	2.643	0.621	3.768	2.227

Schedule:

AARGM: FCA, PRR, and PCA moved from 1Q FY08 in PB07 to 2Q FY08. LRIP 1 moved from 2Q FY08 in PB07 to 3Q FY08.

APKWS: The Army did not include APKWS in POM08 submission, therefore the APKWS program is being curtailed. Efforts will be made to close out the contract through FY07.

Technical:

Not Applicable

EXHIBIT R-2a, RDT&E Project Justification						DATE:							
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-7						PROGRAM ELEMENT NUMBER AND NAME 0205601N, HARM IMPROVEMENT			PROJECT NUMBER AND NAME 1780, HARM IMPROVEMENT				
COST (\$ in Millions)						FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
1780 HARM IMPROVEMENT						3.647	1.876	1.989	1.992	1.944	1.878	1.904	1.932
RDT&E Articles Qty													

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

HIGH-SPEED ANTI-RADIATION (HARM) IMPROVEMENT: The High-speed Anti-Radiation Missile (HARM) is a joint service program with the Air Force (NAVY lead). The program commenced production in FY1983. Program Element 0205601N was used until FY 1990 to develop and test one hardware and two software upgrades to the HARM (AGM-88B, Block III & AGM-88C, Block IV) as Engineering Change Proposals (ECPs). Another ECP software program (Block IIIA & V) was developed (FY1996 through FY1999) to modify HARM software in order to meet operational requirements. The Block V tactical software upgrade gives HARM improved geographic specificity and improved capability against advanced waveforms. HARM Block IIIA/V software was distributed to the Fleet in FY2000.

HARM Improvement includes efforts to conduct Foreign Military Exploitation (FME) analysis and engineering to exploit vulnerabilities of foreign anti-radar threats. HARM Improvement includes funding for threat assessment, operational updates, and integration efforts.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

HARM FME	FY 2006	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	3.647	1.876	1.989	1.992
RDT&E Articles Qty				

Conduct Foreign Military Exploitation (FME) analysis and engineering to exploit vulnerabilities of foreign anti-radar threats. HARM Improvement includes funding for threat assessment, operational updates, and integration efforts.

C. OTHER PROGRAM FUNDING SUMMARY: FY 2006 FY 2007 FY 2008 FY 2009 FY 2010 FY 2011 FY 2012 FY 2013 To Complete Total Cost

Not Applicable

D. ACQUISITION STRATEGY

Not Applicable

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2007		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
RDT&E,N / BA-7		0205601N, HARM IMPROVEMENT				1780, HARM IMPROVEMENT						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	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
PRODUCT DEVELOPMENT												
SUBTOTAL PRODUCT DEVELOPMENT												

Remarks:

SUPPORT												
Studies & Analyses	VARIOUS	VARIOUS	.680								.680	
SUBTOTAL SUPPORT			.680								.680	

Remarks:

TEST & EVALUATION												
Oper Test & Eval	WX	NAWCWD, CHINA LAKE CA	10.020	1.840	Oct 2006	1.953	Oct 2007	1.954	Oct 2008	Continuing	Continuing	
SUBTOTAL TEST & EVALUATION			10.020	1.840		1.953		1.954		Continuing	Continuing	

Remarks:

MANAGEMENT												
Program Mgmt Sup	WX	NAWCAD, PATUXENT RIVER MD	.361	.010	Oct 2006	.010	Oct 2007	.011	Oct 2008	Continuing	Continuing	
Travel	TO	NAVAIR, PAXTUXENT RIVER MD	.382	.026	Oct 2006	.026	Oct 2007	.027	Oct 2008	Continuing	Continuing	
SUBTOTAL MANAGEMENT			.743	.036		.036		.038		Continuing	Continuing	

Remarks:

Total Cost			11.443	1.876		1.989		1.992		Continuing	Continuing	
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Remarks:

EXHIBIT R-2a, RDT&E Project Justification							DATE:							
APPROPRIATION/BUDGET ACTIVITY							2185, AARGM							
RDT&E,N / BA-7							PROGRAM ELEMENT NUMBER AND NAME							
							0205601N, HARM IMPROVEMENT							
PROJECT NUMBER AND NAME							2185, AARGM							
COST (\$ in Millions)							FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
2185 AARGM							76.442	91.976	32.773	6.001	3.478	3.276	3.332	3.386
RDT&E Articles Qty							6	8	17					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The AGM-88E Advanced Anti-Radiation Guided Missile (AARGM) Project transitioned a Phase III Small Business Innovative Research (SBIR) program to develop and demonstrate a multi-mode guidance section on a HARM airframe to System Development and Demonstration (SD&D) in FY2003. The AARGM SD&D program is designed to integrate multi-mode guidance (passive Anti-Radiation Homing (ARH)/active Millimeter Wave (MMW) Radar/Global Positioning system/Inertial Navigation System (GPS/INS)) on the HARM AGM-88 missile. AARGM weapon system capabilities include: active Millimeter Wave terminal guidance, counter shutdown, expanded threat coverage, enhanced anti-radiation homing receiver, netted targeting real-time feed via Integrated Broadcast Service (IBS) prior to missile launch, weapon impact assessment transmitted prior to detonation, GPS/point-to-point weapon navigation, and weapon employment with impact avoidance zone/missile impact zones.

The AARGM program transitioned the Quick Bolt Advanced Concept Technology Demonstration (ACTD) to SD&D. Quick Bolt added the capabilities to receive threat data from national assets, enlarging the target set and increasing aircrew situational awareness, and to transmit a Weapon Impact Assessment (WIA) message to assist in the critical area of Battle Damage Assessment (BDA). The Quick Bolt ACTD was completed in FY03. Quick Bolt demonstration testing successfully used Impact Avoidance Zone (IAZ) logic to distinguish between the prescribed and original target, demonstrating the ability to greatly reduce friendly fire incidents and collateral damage.

In June 2003, a successful Milestone B transitioned AARGM to a System Development and Demonstration (SD&D) Acquisition Category 1C (ACAT 1C) program. ATK Missile Systems Company (AMSC) was awarded the AARGM SD&D NAVAIR Contract N00019-03-C-0353, valued at \$222.6M. In May 2004, the contract was increased to \$231.9M to accelerate incorporation of an embedded IBS-Receiver, enabling the warfighter to directly receive National intelligence data, providing additional AARGM targeting data to increase overall pilot situational awareness. The AARGM program plans to produce 31 test articles and 1,879 missiles (83 Low Rate Initial Production (LRIP) missiles and 1,796 Full Rate AGM-88Es).

In FY2009-2013, the AGM-88E AARGM program plans to develop and demonstrate the capability to engage and destroy non-traditional suppression of enemy air defenses (SEAD) and GWOT targets. These developments continue Future Naval Capability (FNC) Science and Technology (S&T) investments by the Office of Naval Research (ONR) initiated in FY2006.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

AARGM SD&D	FY 2006	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	76.442	91.976	32.773	6.001
RDT&E Articles Qty	6	8	17	

Milestone B System Development and Demonstration (SD&D) activities, and post-Milestone B SD&D efforts. Contractor to update the Advanced Technology Demonstration (ATD)/Advanced Concept Technology Demonstration (ACTD) subsystem designs to the SD&D System Performance Specification and prepare for/conduct System Design Review, Preliminary Design Review, Critical Design Review, Contractor build-up and laboratory and field testing of the AGM-88E seeker. Field activities to support System Engineering, aircraft integration (including Software Configuration Set support), test assets, and test and evaluation requirements analysis, and developmental logistics support. Conducted successful System Preliminary Design Review on 05 April 2005 and Critical Design Review on 28 February 2006. In FY2007, DT-B1 will be completed with integration and captive carry of AARGM on F/A-18C/D. Live fire testing will begin in FY2007 and continue through FY2008. OPEVAL will begin in FY2008 and complete in FY2009. Development of capability to attach non-traditional SEAD and GWOT targets will continue in FY2009.

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2007
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E,N / BA-7	0205601N, HARM IMPROVEMENT	2185, AARGM	

C. OTHER PROGRAM FUNDING SUMMARY:	<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>	To Complete	Total Cost
Budget Line Item No. 232700, HARM MODS	0.000	0.000	41.302	53.966	55.635	65.169	96.489	140.177		452.738

D. ACQUISITION STRATEGY:

The AARGM program started as a Phase I Small Business Innovative Research (SBIR), Advanced Technology Program (ATD), evolved into a Phase III SBIR program, and transitioned into a System Development and Demonstration (SD&D) ACAT 1C program in June 2003. The AARGM SD&D will fulfill U.S. Navy operational requirements and incorporates AARGM ATD and Quick Bolt ACTD-demonstrated system requirements. Government responsibilities for SD&D include monitoring, technical assessment, and validation of contractor technology development and testing.

Exhibit R-3 Cost Analysis (page 1)										DATE: February 2007		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
RDT&E,N / BA-7		0205601N, HARM IMPROVEMENT				2185, AARGM						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	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
PRODUCT DEVELOPMENT												
Aircraft Integration	WX	NAWCWD, CHINA LAKE CA	5.329	1.868	Oct 2006	.190	Oct 2007				7.387	
Aircraft Integration	WX	NAWCAD, PATUXENT RIVER MD		.050	Oct 2006						.050	
Primary Hdw Development - SD&I	C-CPIF	ALLIANT TECHSYSTEMS INC, WOODLAND	160.389	60.225	Oct 2006	14.672	Oct 2007	3.033	Oct 2008	11.803	250.122	250.122
Systems Eng	WX	NAWCWD, CHINA LAKE CA	30.611	13.255	Oct 2006	7.845	Oct 2007	1.346	Oct 2008	.550	53.607	
Systems Eng	VARIOUS	VARIOUS		.225							.225	
Prior Years Product Development	VARIOUS	VARIOUS	189.816								189.816	
SUBTOTAL PRODUCT DEVELOPMENT			386.144	75.623		22.707		4.379		12.353	501.206	

Remarks:

SUPPORT												
Integrated Logistics Sup	WX	NAWCWD, CHINA LAKE CA	2.123	1.218							3.341	
Integrated Logistics Sup	VARIOUS	VARIOUS	.012	.343							.355	
Studies & Analyses	VARIOUS	VARIOUS	.711	.100	Oct 2006	.100	Oct 2007				.911	
Prior Years Support	VARIOUS	VARIOUS	.012								.012	
SUBTOTAL SUPPORT			2.858	1.661		.100					4.619	

Remarks:

TEST & EVALUATION												
Dev Test & Eval	WX	NAWCWD, CHINA LAKE CA	6.067	3.047	Oct 2006	2.576	Oct 2007	.448	Oct 2008		12.138	
Oper Test & Eval	WX	OPER T & E FOR CD 30, NORFOLK VA	.090	.400	Oct 2006	5.176	Oct 2007	.948	Oct 2008		6.614	
Oper Test & Eval	WX	NAWCWD, CHINA LAKE CA								.367	.367	
Test Assets		NAWCWD, CHINA LAKE CA	1.960	3.125							5.085	
SUBTOTAL TEST & EVALUATION			8.117	6.572		7.752		1.396		.367	24.204	

Remarks:

MANAGEMENT												
Contractor Eng Supt - Other	VARIOUS	VARIOUS	6.759					.020	Oct 2008	.080	6.859	
ENGINEERING & TECH SRVC (NON-F	VARIOUS	VARIOUS		1.568	Oct 2006	.375	Oct 2007				1.943	
Program Mgmt Sup	WX	NAWCAD, PATUXENT RIVER MD	2.316	6.352	Oct 2006	1.739	Oct 2007	.196	Oct 2008	.632	11.235	
Travel	TO	NAVAIR, PAXTUXENT RIVER MD	1.068	.200	Oct 2006	.100	Oct 2007	.010	Oct 2008	.040	1.418	
SUBTOTAL MANAGEMENT			10.143	8.120		2.214		.226		.752	21.455	

Remarks:

Total Cost			407.263	91.976		32.773		6.001		13.472	551.485	
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Remarks:

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE: February 2007								
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME												
RDT&E,N / BA-7										0205601N, HARM IMPROVEMENT										2185, AARGM												
Fiscal Year	FY 2006				FY 2007				FY 2008				FY 2009				FY 2010				FY 2011				FY 2012				FY 2013			
	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
Acquisition Milestones									MSC	△																						
Development Preliminary Design Review Critical Design Review Functional Configuration Audit Production Readiness Review Physical Configuration Audit	CDR	▲							FCA	△			PRR	△			PCA	△														
Testing & Evaluation Milestones Development Testing Development Testing Operational Assessment Operational Testing (OTC)		DT-B1																														
Production Milestones Low-Rate Initial Production LRIP 1 Low-Rate Initial Production LRIP 2 Full Rate Production									LRIP 1	△							LRIP 2	△							FRP Lpt 1	△						
Deliveries Low-Rate Initial Production LRIP 1 Low-Rate Initial Production LRIP 2 Full Rate													LRIP 1 Deliveries								LRIP 2 Deliveries								FRP Deliveries			
Initial Operational Capability (IOC)																																

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2007			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME				
RDT&E,N / BA-7		0205601N, HARM IMPROVEMENT			3056, ADVANCED PRECISION KILL WEAPON SYSTEM /APKWS				
COST (\$ in Millions)		FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
3056 ADVANCED PRECISION KILL WEAPON SYSTEM		2.096							
RDT&E Articles Qty									

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Formerly known as the Advanced Precision Kill Weapons System (APKWS), APKWS II is an Army System Development & Demonstration (SD&D) program to develop a low cost Semi Active Laster (SAL) precision guidance section for existing 2.75 inch unguided rockets. APKWS II will provide an inexpensive, small, lightweight; precision-kill weapon that is effective against soft and lightly armored targets and which enhances crew survivability with increase standoff range. APKWS II offers precision, maximum stored kills per aircraft sortie, minimum collateral damage potential, and increased effectiveness over legacy unguided rockets. The guidance package can be assembled with existing unguided rockets components (warhead and rockets motor) and can be fired from existing rocket launchers. The Navy's effort on the Smart Rocket Launcher has been delayed pending further funding.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

	FY 2006	FY 2007	FY 2008	FY 2009
Accomplishments / Effort / Sub-total Cost	2.096			
RDT&E Articles Qty				

APKWS II-System Development and Demonstration (SD&D) program to develop a low cost Semi Active Laser (SAL) precision guidance section for existing 2.75 inch unguided rockets.

The Army did not include APKWS in POM08 submission, therefore the APKWS program is being curtailed. Efforts will be made to close out the contract through FY07.

C. OTHER PROGRAM FUNDING SUMMARY:

FY 2006 FY 2007 FY 2008 FY 2009 FY 2010 FY 2011 FY 2012 FY 2013 To Complete Total Cost

Not Applicable

D. ACQUISITION STRATEGY:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205601N, HARM IMPROVEMENT				PROJECT NUMBER AND NAME 9999, Congressional Adds			
COST (\$ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	5.027	5.977	0.000	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty								
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Congressional Adds</p>								

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205601N, HARM IMPROVEMENT	PROJECT NUMBER AND NAME 9999, Congressional Adds		
B. Accomplishments/Planned Program				
2185C/N	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	1.084			
RDT&E Articles Quantity				
Advanced Anti-Radiation Guided Missile (AARGM) Fund development of classified AARGM Derivative Program.				
9855C	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost		4.981		
RDT&E Articles Quantity				
Joint Common Missile (JCM) Development Funding continues JCM Technology Maturation of critical technologies (multi-mode seeker, multi-purpose warhead, and combination FW/RW rocket motor).				
9855N	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	3.943			
RDT&E Articles Quantity				
Joint Common Missile (JCM) Development Funding continues JCM Technology Maturation of critical technologies (multi-mode seeker, multi-purpose warhead, and combination FW/RW rocket motor).				
9A74N	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost		0.996		
RDT&E Articles Quantity				
Aircraft Composite Rocket Launcher Improvement Program Funds the design, fabrication and demonstration of a composite rocket launcher. The composite launcher structure will incorporate an existing electronic digital fire control system to provide lighter, more capable launcher. Increased capabilities include the ability to carry "mixed loads" of rockets and the ability to remotely set fuses from the cockpit.				