

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: May 2009	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						R-1 ITEM NOMENCLATURE 0205601N, HARM IMPROVEMENT		
COST (\$ in Millions)	FY 2008	FY 2009	FY 2010					
Total PE Cost	70.053	33.668	30.045					
1780 HARM IMPROVEMENT	1.720	1.920	1.919					
2185 AARGM	45.475	16.225	9.235					
3056 APKWS	13.639	13.030	5.000					
3212 MEDUSA JCTD			13.891					
9999 CONGRESSIONAL ADDS	9.219	2.493						

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 full rate production in FY 1983. 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 (ECP). Another ECP software program (Block IIIA & V) was developed (FY 1996 through FY 1999) to modify HARM software in order to meet operational requirements. HARM Block IIIA/V software was distributed to the Fleet in FY 2000. HARM Improvement includes efforts to conduct Foreign Military Assessment (FMA) 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-IC acquisition program in System Development & Demonstration (SD&D) to upgrade the AGM-88 HARM missile with multi-mode/multi-spectral guidance and targeting capability. AARGM also incorporates the capability to receive national broadcast data and transmit weapon impact assessments (demonstrated in Quick Bolt Advanced Concept Technology Demonstration (ACTD)). AARGM SD&D commenced in FY 2003. DT-B1 began in FY 2004 and continued through 4Q FY 2008. Captive carry testing of Engineering Manufacturing Development hardware began in FY 2007. DT-B1 overlapped with DT-B2 which began in 3Q FY 2007. There have been five successful live fire tests conducted. Three additional live fire tests are planned for DT-B2. Operational Assessment was completed 4Q FY 2008. This test schedule will support readiness for Operational Evaluation. No significant failures have occurred. Milestone C was achieved 4Q FY 2008, followed by a combined Low Rate Initial Production (LRIP) Lot 1 and Lot 2 contract award in 1Q FY 2009. LRIP 1 deliveries are scheduled to commence 2Q FY 2010. The AARGM program plans production of 1,871 modification kits.

(U) ADVANCED PRECISION KILL WEAPON SYSTEM (APKWS): APKWS was an Army 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 support APKWS in its POM 2008 budget submission. Congress appropriated \$6M in FY 2008 for the Navy to continue and complete SDD and the language encouraged reprogramming if needed. A \$14M ATR was approved in April 2008. APKWS II will provide an inexpensive, small, lightweight, precision-guided weapon that is effective against soft and lightly armored targets and which enhances crew survivability with increased 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 rocket components (warhead and rocket motor) and can be fired from existing rocket launchers.

(U) MEDUSA JCTD: The Medusa FY 2010 new start JCTD will demonstrate the Low Cost Guided Imaging Rockets (LOGIR) technology currently being developed at the Naval Air Warfare Center Weapons Division (NAWCWD) China Lake on the MH-60R. LOGIR provides "fire and forget" capability to 2.75-inch rockets in support of Sea Shield Pillar. LOGIR increases platform lethality against Fast Attack Craft/Fast Inshore Attack Craft (FAC/FIAC) threat. LOGIR provides a low-cost Imaging InfraRed (I2R) precision guidance section for the existing 2.75-inch unguided rockets. LOGIR provides maximum precision kills per sortie, low cost, minimum collateral damage, increased efficiency, and increased standoff. Medusa was approved by OSD for a rolling start. OSD is also providing funding for this effort. Initial Program documentation (i.e. Performance Spec, CDD) will be developed within the scope of the JCTD.

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APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7			R-1 ITEM NOMENCLATURE 0205601N, HARM IMPROVEMENT	
B. PROGRAM CHANGE SUMMARY				
Funding:	FY 2008	FY 2009	FY 2010	
Previous President's Budget:	43.565	31.427	5.364	
Current BES:	70.053	33.668	30.045	
Total Adjustments	<u>26.488</u>	<u>2.241</u>	<u>24.681</u>	
Summary of Adjustments				
Congressional Rescissions				
Congressional Adjustments	25.600	2.333		
SBIR/STTR/FTT Assessments	-1.048			
Program Adjustments	1.936		24.692	
Rate/Misc Adjustments		-0.092	-0.011	
Subtotal	<u>26.488</u>	<u>2.241</u>	<u>24.681</u>	
Schedule:				
HARM IMPROVEMENT- Not Applicable				
<p>AARGM- MSC moved from 3Q FY 2008 TO 4Q FY 2008. LRIP I contract award moved from 3Q FY 2008 to 1Q FY 2009 in conjunction with MSC. LRIP I deliveries will begin in 2Q FY 2010 vice 3Q FY 2009. Original LRIP II contract award moved from 2Q FY 2009 for a combined FY 2008/FY 2009 LRIP contract due to WPN Congressional mark. New FY 2010 LRIP II contract award will be 1Q FY 2010 with deliveries beginning in 1Q FY 2011 vice 3Q FY 2009. IOC has subsequently been moved from 1Q FY 2010 to 1Q FY 2011 to accommodate the delivery schedule. PRR moved from 2Q FY 2008 to 4Q FY 2008. FCA/SVR moved from 4Q FY 2008 to 3Q FY 2009. PCA has moved from 3Q FY 2009 to 2Q FY 2010. DT-B2 has been extended three quarters to complete in 3Q FY 2009 vice 4Q FY 2008. Operational Assessment (OT-B) moved from 2Q FY 2008 to 4Q FY 2008. Operational Evaluation (OT-C) will begin 4Q FY 2009 vice 1Q FY 2009 following completion of DT-B2. Schedule delays were due to hardware availability, increased contractor efforts for hardware integration, delays in contractor testing and delays in the F/A-18C/D Software Configuration Set software build 21X.</p>				
APKWS- Not Applicable				
MEDUSA JCTD- Not Applicable				
Technical:				
HARM IMPROVEMENT-Not Applicable				
AARGM-Not Applicable				
APKWS- Not Applicable				
MEDUSA JCTD- Not Applicable				

EXHIBIT R-2a, RDT&E Project Justification							DATE: May 2009													
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 2008	FY 2009	FY 2010															
1780 HARM IMPROVEMENT			1.720	1.920	1.919															
RDT&E Articles Qty																				
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>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 FY 1983. 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 (FY 1996 through FY 1999) 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 FY 2000.</p> <p>HARM Improvement includes efforts to conduct Foreign Military Assessment (FMA) analysis and engineering to exploit vulnerabilities of foreign anti-radar threats. HARM Improvement includes funding for threat assessment, operational updates and integration efforts.</p>																				
<p>B. ACCOMPLISHMENTS / PLANNED PROGRAM:</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">HARM FMA</td> <td style="width:10%;">FY 2008</td> <td style="width:10%;">FY 2009</td> <td style="width:10%;">FY 2010</td> </tr> <tr> <td>Accomplishments / Effort / Sub-total Cost</td> <td>1.720</td> <td>1.920</td> <td>1.919</td> </tr> <tr> <td>RDT&E Articles Qty</td> <td></td> <td></td> <td></td> </tr> </table> <p>Conduct Foreign Military Assessment (FMA) analysis and engineering to exploit vulnerabilities of foreign anti-radar threats. HARM Improvement includes funding for threat assessment, operational updates, and integration efforts.</p>									HARM FMA	FY 2008	FY 2009	FY 2010	Accomplishments / Effort / Sub-total Cost	1.720	1.920	1.919	RDT&E Articles Qty			
HARM FMA	FY 2008	FY 2009	FY 2010																	
Accomplishments / Effort / Sub-total Cost	1.720	1.920	1.919																	
RDT&E Articles Qty																				
<p>C. OTHER PROGRAM FUNDING SUMMARY: <u>FY 2008</u> <u>FY 2009</u> <u>FY 2010</u></p> <p>Not Applicable</p>																				
<p>D. ACQUISITION STRATEGY:</p> <p>Not Applicable</p>																				

Exhibit R-3 Cost Analysis (page 1)										DATE: May 2009	
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 PY s Cost	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date				
PRODUCT DEVELOPMENT											
Systems Engineering	WX	NAWCAD, PATUXENT RIVER MD		.230	Nov 2008	.230	Nov 2009				
SUBTOTAL PRODUCT DEVELOPMENT				.230		.230					

Remarks:

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

Remarks:

TEST & EVALUATION											
Oper Test & Eval	WX	NAWCWD, CHINA LAKE CA	13.814	1.680	Nov 2008	1.679	Nov 2009				
SUBTOTAL TEST & EVALUATION			13.814	1.680		1.679					

Remarks:

MANAGEMENT											
Program Mgmt Sup	WX	NAWCAD, PATUXENT RIVER MD	.311								
Travel	TO	NAVAIR, PATUXENT RIVER MD	.383	.010	Nov 2008	.010	Nov 2009				
SUBTOTAL MANAGEMENT			.694	.010		.010					

Remarks:

Total Cost			15.187	1.920		1.919					
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Remarks: Numbers may not add due to rounding.

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile																								DATE:			
APPROPRIATION/BUDGET ACTIVITY																								PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME	
RDT&E,N / BA-7																								0205601N, HARM IMPROVEMENT		1780, HARM IMPROVEMENT	
Fiscal Year	FY 2008				FY 2009				FY 2010																		
	1	2	3	4	1	2	3	4	1	2	3	4															
Acquisition Milestones																											
Test & Evaluation Milestones																											
Operational Test																											
Foreign Military Assessment (FMA)																											
Production Milestones																											
Deliveries																											

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: May 2009	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0205601N, HARM IMPROVEMENT			PROJECT NUMBER AND NAME 2185, AARGM		
COST (\$ in Millions)		FY 2008	FY 2009	FY 2010			
Project Cost		45.475	16.225	9.235			
RDT&E Articles Qty*		17					
<p>*Qty reflects test article delivery.</p> <p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>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 FY 2003. 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</p> <p>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 FY 2003. Quick Bolt demonstration testing successfully used Impact Avoidance Zone (IAZ) logic to distinguish between the proscribed and original target, demonstrating the ability to greatly reduce friendly fire incidents and collateral damage.</p> <p>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 baseline 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. Recent modifications have increased the current baseline to \$232.3. The AARGM program includes 31 test articles and 1,871 production modification kits.</p> <p>DT-B1 began in FY 2004 and continued through 4Q FY 2008. Captive carry testing of Engineering Manufacturing Development hardware began in FY 2007. DT-B1 overlapped with DT-B2 which began in 3Q FY 2007. There have been five successful live fire tests conducted. Three additional live fire tests are planned for DT-B2. Operational Assessment was completed 4Q FY 2008. This test schedule will support readiness for Operational Evaluation. No significant failures have occurred. Milestone C was achieved 4Q FY 2008, followed by a combined Low Rate Initial Production (LRIP) Lot 1 and Lot 2 contract award in 1Q FY 2009. LRIP 1 deliveries are scheduled to commence 2Q FY 2010.</p> <p>In FY 2010, the AGM-88E AARGM program plans to develop and demonstrate the capability to engage and destroy non-traditional Suppression of Enemy Air Defenses (SEAD)/Destruction of Enemy Air Defenses (DEAD) 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 FY 2006.</p>							

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205601N, HARM IMPROVEMENT	PROJECT NUMBER AND NAME 2185, AARGM			
B. ACCOMPLISHMENTS / PLANNED PROGRAM:					
AARGM SD&D					
	FY 2008	FY 2009	FY 2010		
Accomplishments / Effort / Sub-total Cost	45.475	16.225	3.642		
RDT&E Articles Qty*	17				
*Qty reflects test article delivery.					
Milestone B System Development and Demonstration (SD&D) activities. Contractor to update the Advanced Technology Demonstration (ATD)/Advanced Concept Technology Demonstration (ACTD) subsystem designs to the SD&D System Performance 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. 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. Live fire testing began in FY 2007 and continued into FY 2008. In FY 2008, DT-B1 completed with integration and captive carry of AARGM on F/A-18C/D. In FY 2009, DT-B2 will be completed with integration, captive carry, and live fire of AARGM on F/A-18 C/D. OPEVAL will commence in FY 2009 with FOT&E beginning in FY 2010.					
AARGM Derivative Program (ADP)			FY 2008	FY 2009	FY 2010
Accomplishments / Effort / Sub-total Cost			.250		
RDT&E Articles Qty					
Development of capability to attack non-traditional SEAD/DEAD and OCO targets will continue through the FYDP.					
Threat Data Library Development			FY 2008	FY 2009	FY 2010
Accomplishments / Effort / Sub-total Cost			2.753		
RDT&E Articles Qty					
Update ELINT files and Millimeter Wave (MMW) signatures to ID track and engage new and/or improved threat radars. Testing and assessment of threat systems. Update AARGM threat data library.					
ARM UPC JMPS S/W Update			FY 2008	FY 2009	FY 2010
Accomplishments / Effort / Sub-total Cost			2.590		
RDT&E Articles Qty					
Updates to UPC software in FY 2010 leading to testing to maintain ARM JMPS UPC compatibility with future JMPS ".NET" architecture.					
C. OTHER PROGRAM FUNDING SUMMARY:					
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>		
WPN Budget Line Item No. 232700, HARM MODS	41.023	22.334	47.973		
RDTEN PE 0604269N EA-18G, 3063 EA-18G Development		2.200			
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. Milestone C was achieved in September 2008.					

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)										DATE: May 2009	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-7		PROGRAM ELEMENT 0205601N, HARM IMPROVEMENT				PROJECT NUMBER AND NAME 2185, AARGM					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date				
PRODUCT DEVELOPMENT											
Aircraft Integration	WX	NAWCWD, CHINA LAKE CA	7.333	1.503	Nov 2008						
Aircraft Integration	WX	NAWCAD, PATUXENT RIVER MD	.050								
Primary Hdw Development - SD&D	C-CPIF	ALLIANT TECHSYSTEMS INC, WOODLAND HILLS, CA	263.275	3.347	Feb 2009						
Primary Hdw Development - SD&D	MIPR	HQ SEC OF AF-FMB, WASHINGTON DC	.088								
Primary Hdw Development	TBD	ALLIANT TECHSYSTEMS INC, WOODLAND HILLS, CA				2.003	Nov 2009				
Primary Hdw Development	WX	NAVY SYST MGT ACT, ARLINGTON VA	1.084			.250	Nov 2009				
Systems Eng	MIPR	HQ SEC OF AF-FMB, WASHINGTON DC	.150								
Systems Eng	WX	NAWCWD, CHINA LAKE CA	53.113	1.583	Nov 2008	2.642	Nov 2009				
Prior Years Product Development	VARIOUS	VARIOUS	176.785								
SUBTOTAL PRODUCT DEVELOPMENT			501.877	6.433		4.895					

Remarks: Total PYs Cost adjusted for Prim Hdw Devel - SD&D & Prior Years Prod Devel to accurately represent SD&D & prior contract costs. Numbers may not add due to rounding.

SUPPORT											
Integrated Logistics Sup	WX	NAWCWD, CHINA LAKE CA	5.404								
Integrated Logistics Sup	VARIOUS	VARIOUS	1.371								
Studies & Analyses	VARIOUS	VARIOUS	.711			.050	Nov 2009				
Prior Years Support	VARIOUS	VARIOUS	.012								
SUBTOTAL SUPPORT			7.498			.050					

Remarks:

TEST & EVALUATION											
Dev Test & Eval	WX	NAWCWD, CHINA LAKE CA	16.807	3.550	Nov 2008	.468	Nov 2009				
Oper Test & Eval	WX	COMOPTEVFOR, NORFOLK VA	1.247	5.474	Nov 2008	3.642	Nov 2009				
Test Assets	WX	NAWCWD, CHINA LAKE CA	5.910	.540	Nov 2008						
SUBTOTAL TEST & EVALUATION			23.964	9.564		4.110					

Remarks: Totals may not add due to rounding.

MANAGEMENT											
Contractor Eng Supt - Other	VARIOUS	VARIOUS	6.759								
ENGINEERING & TECH SRVC	VARIOUS	VARIOUS	3.144	.020	Nov 2008	.020	Nov 2009				
Program Mgmt Sup	VARIOUS	VARIOUS	6.354	.148	Nov 2008	.150	Nov 2009				
Travel	TO	NAVAIR, PATUXENT RIVER MD	1.368	.060	Nov 2008	.010	Nov 2009				
SUBTOTAL MANAGEMENT			17.625	.228		.180					

Remarks: Totals may not add due to rounding.

Total Cost			550.965	16.225		9.235					
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Remarks: Totals may not add due to rounding.

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile											DATE: May 2009									
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 2008				FY 2009				FY 2010											
	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			PRR ▲		FCA ▲				PCA ▲											
Testing & Evaluation Milestones Development Testing Development Testing Operational Assessment (OT-B) Operational Evaluation (OT-C)				DT-B1				DT-B2												
Production Milestones Low-Rate Initial Production LRIP 1 Low-Rate Initial Production LRIP 2 Full Rate Production				LRIP 1 ▲				LRIP 2 ▲												
Deliveries Low-Rate Initial Production LRIP 1 Low-Rate Initial Production LRIP 2 Full Rate								LRIP 1 Deliveries												
Initial Operational Capability (IOC)																				

EXHIBIT R-2a, RDT&E Project Justification						DATE: May 2009																		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-7			PROGRAM ELEMENT NUMBER AND NAME 0205601N, HARM IMPROVEMENT			PROJECT NUMBER AND NAME 3056, ADVANCED PRECISION KILL WEAPON SYSTEM (APKWS)																		
COST (\$ in Millions)			FY2008	FY2009	FY2010																			
3056 ADVANCED PRECISION KILL WEAPON SYSTEM			13.639	13.030	5.000																			
RDT&E Articles Qty																								
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: 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. 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 increased standoff range. APKWS 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 rocket components (warhead and rockets motor) and can be fired from existing rocket launchers.</p>																								
<p>B. ACCOMPLISHMENTS / PLANNED PROGRAM:</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">APKWS SD&D</td> <td style="width:10%;">FY2008</td> <td style="width:10%;">FY2009</td> <td style="width:10%;">FY2010</td> <td style="width:10%;"></td> </tr> <tr> <td>Accomplishments / Effort / Sub-total Cost</td> <td>13.639</td> <td>13.030</td> <td>5.000</td> <td></td> </tr> <tr> <td>RDT&E Articles Qty</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>										APKWS SD&D	FY2008	FY2009	FY2010		Accomplishments / Effort / Sub-total Cost	13.639	13.030	5.000		RDT&E Articles Qty				
APKWS SD&D	FY2008	FY2009	FY2010																					
Accomplishments / Effort / Sub-total Cost	13.639	13.030	5.000																					
RDT&E Articles Qty																								
<p>APKWS 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. FY 2009 funds will be used for the completion of the United States Marine Corps (USMC) led APKWS program. It will include prime contractor hardware development, engineering support, testing and evaluation, and logistic support.</p>																								
<p>C. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width:100%;"> <tr> <td></td> <td style="text-align: center;"><u>FY 2008</u></td> <td style="text-align: center;"><u>FY 2009</u></td> <td style="text-align: center;"><u>FY 2010</u></td> </tr> <tr> <td>PANMC Budget Line Item No. 015100 Airborne Rockets</td> <td style="text-align: center;">26.818</td> <td style="text-align: center;">57.054</td> <td style="text-align: center;">81.153</td> </tr> </table>											<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	PANMC Budget Line Item No. 015100 Airborne Rockets	26.818	57.054	81.153							
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>																					
PANMC Budget Line Item No. 015100 Airborne Rockets	26.818	57.054	81.153																					
<p>D. ACQUISITION STRATEGY: Not Applicable</p>																								

Exhibit R-3 Cost Analysis (page 1)										DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
RDT&E, N / BA 7		0205601N, HARM IMPROVEMENT				3056, ADVANCED PRECISION KILL WEAPON SYSTEM (APKWS)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
PRODUCT DEVELOPMENT												
Aircraft Integration												
Primary Hdw Development	C/CPFF	BAE SYSTEMS, INC., NASUA, NH	14.924	7.000	Nov 2008							
Primary Hdw Development												
Systems Eng	WX	NAWCWD, CHINA LAKE, CA	1.658	1.430	Nov 2008							
Systems Eng	WX	NSWC INDIAN HEAD, MD	.997			.300	Nov 2009					
SUBTOTAL PRODUCT DEVELOPMENT			17.579	8.430		.300						
Remarks:												
SUPPORT												
Integrated Logistics Sup	WX	VARIOUS	.424	.200	Nov 2008							
SUBTOTAL SUPPORT			.424	.200								
Remarks:												
TEST & EVALUATION												
Dev Test & Eval	WX	VARIOUS	1.322	2.500	Nov 2008							
Oper Test & Eval	WX	OPTEVFOR		.800	Nov 2008	1.800	Nov 2009					
Test Assets												
SUBTOTAL TEST & EVALUATION			1.322	3.300		1.800						
Remarks:												
MANAGEMENT												
Government Eng Sup	WX	NAWCWD, CHINA LAKE, CA	1.127	.500	Nov 2008	2.800	Nov 2009					
Program Mgmt Sup	VARIOUS	VARIOUS	1.206	.500	Nov 2008							
Travel	TO	NAVAIR-HQ, PATUXENT RIVER, MD	.100	.100	Nov 2008	.100	Nov 2009					
SUBTOTAL MANAGEMENT			2.433	1.100		2.900						
Remarks:												
Total Cost			21.758	13.030		5.000						
Remarks:												

EXHIBIT R-2a, RDT&E Project Justification						DATE: May 2009																																						
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-7			PROGRAM ELEMENT NUMBER AND NAME 0205601N, HARM IMPROVEMENT			PROJECT NUMBER AND NAME 3212, MEDUSA JCTD																																						
COST (\$ in Millions)			FY2008	FY2009	FY2010																																							
3212 MEDUSA JCTD					13.891																																							
RDT&E Articles Qty																																												
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Medusa FY 2010 new start JCTD will demonstrate the Low Cost Guided Imaging Rockets (LOGIR) technology currently being developed at the Naval Air Warfare Center Weapons Division (NAWCWD) China Lake on the MH-60R. LOGIR provides "fire and forget" capability to 2.75-inch rockets in support of Sea Shield Pillar. LOGIR increases platform lethality against Fast Attack Craft/Fast Inshore Attack Craft (FAC/FIAC) threat. LOGIR provides a low-cost Imaging InfraRed (I2R) precision guidance section for the existing 2.75-inch unguided rockets. LOGIR provides maximum precision kills per sortie, low cost, minimum collateral damage, increased efficiency, and increased standoff. Medusa was approved by OSD for a rolling start. OSD is also providing funding for this effort. Initial Program documentation (i.e. Performance Spec, CDD) will be developed within the scope of the JCTD.</p> <p>B. ACCOMPLISHMENTS / PLANNED PROGRAM:</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">MEDUSA JCTD</td> <td style="width: 10%; text-align: center;">FY2008</td> <td style="width: 10%; text-align: center;">FY2009</td> <td style="width: 10%; text-align: center;">FY2010</td> <td style="width: 10%;"></td> </tr> <tr> <td>Accomplishments / Effort / Sub-total Cost</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>RDT&E Articles Qty</td> <td></td> <td></td> <td style="text-align: right;">13.891</td> <td></td> </tr> </table> <p>Demonstration of the Low Cost Guided Imaging Rockets (LOGIR) technology currently being developed.</p> <p>C. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2008</u></th> <th style="width: 10%; text-align: center;"><u>FY 2009</u></th> <th style="width: 10%; text-align: center;"><u>FY 2010</u></th> </tr> </thead> <tbody> <tr> <td>OSD (AS&C)</td> <td></td> <td style="text-align: right;">4.000</td> <td style="text-align: right;">4.000</td> </tr> <tr> <td>USN N8F</td> <td></td> <td style="text-align: right;">0.500</td> <td style="text-align: right;">0.500</td> </tr> <tr> <td>Republic of Korea</td> <td style="text-align: right;">0.200</td> <td style="text-align: right;">1.000</td> <td style="text-align: right;">1.408</td> </tr> <tr> <td>USN IPO</td> <td style="text-align: right;">0.100</td> <td></td> <td></td> </tr> </tbody> </table> <p>D. ACQUISITION STRATEGY Not Applicable</p>										MEDUSA JCTD	FY2008	FY2009	FY2010		Accomplishments / Effort / Sub-total Cost					RDT&E Articles Qty			13.891			<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	OSD (AS&C)		4.000	4.000	USN N8F		0.500	0.500	Republic of Korea	0.200	1.000	1.408	USN IPO	0.100		
MEDUSA JCTD	FY2008	FY2009	FY2010																																									
Accomplishments / Effort / Sub-total Cost																																												
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Exhibit R-3 Cost Analysis (page 1)											DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME							
RDT&E, N / BA 7			0205601N, HARM IMPROVEMENT			3212, MEDUSA JCTD							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date						
PRODUCT DEVELOPMENT													
Aircraft Integration													
Primary Hdw Development													
Primary Hdw Development													
Systems Eng	WX	NAWCWD-China Lake				13.481	Nov 2009						
SUBTOTAL PRODUCT DEVELOPMENT						13.481							
Remarks:													
SUPPORT													
Integrated Logistics Sup													
SUBTOTAL SUPPORT													
Remarks:													
TEST & EVALUATION													
Dev Test & Eval													
OSD (AS&C)													
Test Assets													
SUBTOTAL TEST & EVALUATION													
Remarks:													
MANAGEMENT													
Government Eng Sup													
Program Mgmt Sup	WX	NAWCAD-Patuxent River				.450	Nov 2009						
Travel	TO	NAVAIR HQ				.050	Nov 2009						
SUBTOTAL MANAGEMENT						.500							
Remarks:													
Total Cost						13.981							
Remarks:													

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile													DATE: May 2009			
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME						
RDT&E, N / BA-7					0205601N, HARM IMPROVEMENT					3212, MEDUSA JCTD						
Fiscal Year	FY 2008				FY 2009				FY 2010							
	1	2	3	4	1	2	3	4	1	2	3	4				
Milestones																
Test & Evaluation Milestones Integration & Demonstration																
Production Milestones																
Deliveries Performance Spec CDD																

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: May 2009	
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 2008	FY 2009	FY 2010			
Project Cost		9.219	2.493				
RDT&E Articles Qty							
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>Congressional Adds.</p>							

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: May 2009	
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			
9A74A	FY 08	FY 09	FY 10
Accomplishments/Effort/Subtotal Cost		2.493	
RDT&E Articles Quantity			
<div style="border: 1px solid black; min-height: 60px; margin-top: 5px;">Aircraft Composite Rocket Launcher</div>			
9C58A	FY 08	FY 09	FY 10
Accomplishments/Effort/Subtotal Cost	3.374		
RDT&E Articles Quantity			
<div style="border: 1px solid black; min-height: 60px; margin-top: 5px;"> Advanced Anti-Radiation Guided Missile (AARGM) Funding continues AARGM SD&D program leading to IOC and AARGM Derivative Program (ADP). </div>			
9C59A	FY 08	FY 09	FY 10
Accomplishments/Effort/Subtotal Cost	5.845		
RDT&E Articles Quantity			
<div style="border: 1px solid black; min-height: 60px; margin-top: 5px;"> Advanced Precision Kill Weapons Systems (APKWS) Funds APKWS 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. </div>			

UNCLASSIFIED

UNCLASSIFIED