

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2007																																														
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-5					R-1 ITEM NOMENCLATURE SHIP SELF DEFENSE (Engage: Hard Kill) 0604756N																																																
COST (\$ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013																																													
Total PE Cost	48.221	50.693	67.366	36.490	34.893	8.778	9.536	6.939																																													
0167 / 5" Rolling Airframe Missile	28.404	41.511	40.749	26.769	27.564	1.760	1.731	1.752																																													
0173 / NATO SEASPARROW	5.745	4.699	20.280	9.721	7.329	7.018	7.805	5.187																																													
9081 / PHALANX CIWS SeaRAM	9.763	0.000	6.337	0.000	0.000	0.000	0.000	0.000																																													
9999/ Congressional Adds	4.309	4.483	0.000	0.000	0.000	0.000	0.000	0.000																																													
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>This program element provides funding for the development of systems that fulfill a portion of the third phase of the Ship Self Defense: Engage Hard Kill. Development in this line will focus on hard kill capabilities in which missiles are used to intercept incoming Anti-Ship Cruise Missiles (ASCM).</p> <p>(U) ENGAGEMENT: Missile and system improvements necessary to meet their requirements are being addressed via NATO SEASPARROW Missile System (NSSMS) (0173), 5" Rolling Airframe Missile (RAM) (0167), and Phalanx CIWS SeaRAM (9081/9853/9854). Missile improvements include improved kinematic performance plus advanced seeker and low elevation fusing/warhead capability improvements. System improvements include incorporation of Phalanx detection capability into RAM system (SeaRAM), future concepts studies and self-destructing ammunition, and Future Phalanx Next Generation Improvements.</p> <p>FY06 Congressional Add provides funding for Phalanx/CIWS future concepts studies and self-destructing ammunition development. FY07 Congressional Add provides funding for Future Phalanx Next Generation Improvements.</p> <p>B. PROGRAM CHANGE SUMMARY:</p> <table border="0"> <tr> <td>Funding:</td> <td>FY 2006</td> <td>FY 2007</td> <td>FY 2008</td> <td>FY 2009</td> </tr> <tr> <td>FY 2007 Presidents Budget</td> <td>49.833</td> <td>46.390</td> <td>45.552</td> <td>31.529</td> </tr> <tr> <td>FY 2008 Presidents Budget</td> <td>48.221</td> <td>50.693</td> <td>67.366</td> <td>36.490</td> </tr> <tr> <td>Total Adjustments</td> <td>-1.612</td> <td>4.303</td> <td>21.814</td> <td>4.961</td> </tr> <tr> <td>Summary of Adjustments</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Undistributed General Reductions</td> <td>-1.612</td> <td>-0.197</td> <td>-0.296</td> <td>-0.219</td> </tr> <tr> <td>Congressional Adds</td> <td>0.000</td> <td>4.500</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>Program Adjustments</td> <td>0.000</td> <td>0.000</td> <td>22.11</td> <td>5.180</td> </tr> <tr> <td></td> <td>-1.612</td> <td>4.303</td> <td>21.814</td> <td>4.961</td> </tr> </table>									Funding:	FY 2006	FY 2007	FY 2008	FY 2009	FY 2007 Presidents Budget	49.833	46.390	45.552	31.529	FY 2008 Presidents Budget	48.221	50.693	67.366	36.490	Total Adjustments	-1.612	4.303	21.814	4.961	Summary of Adjustments					Undistributed General Reductions	-1.612	-0.197	-0.296	-0.219	Congressional Adds	0.000	4.500	0.000	0.000	Program Adjustments	0.000	0.000	22.11	5.180		-1.612	4.303	21.814	4.961
Funding:	FY 2006	FY 2007	FY 2008	FY 2009																																																	
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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/ BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604756N SHIP SELF DEFENSE				PROJECT NUMBER AND NAME 0167 / ROLLING AIRFRAME MISSILE			
COST (\$ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	28.404	41.511	40.749	26.769	27.564	1.760	1.731	1.752
RDT&E Articles Qty								
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The purpose of this program is to develop a surface-to-air self-defense system utilizing a dual mode, passive Radio Frequency/Infrared 5" Rolling Airframe Missile. The baseline system (Block 0) provides a self-defense capability against active radar-guided anti-ship missiles and was developed on an equal cost share basis with the Government of the Federal Republic of Germany. The RAM Block 1 provides a capability against passive anti-ship missiles, very low altitude missiles, and maneuvering missiles through the incorporation of an infrared all-the-way mode seeker and improved fuse. The RAM Block 1 MOD 3 upgrade program, which provides an additional capability against helicopters, aircraft and surface craft, is a joint requirement of the U.S. and Federal Republic of Germany agreed to in a Memorandum of Agreement (MOA) signed by both parties. FY06-10 funds continues development and testing of a Block 2 upgrade to the RAM. This upgrade will allow RAM to regain battlespace lost to emerging, more maneuverable ASCM threats. This system is designed to counter anti-ship cruise missile raids and other threats to provide for ship survivability with accurate terminal guidance, proven lethality, and no shipboard post launch dependence.</p>								

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APPROPRIATION/BUDGET ACTIVITY RDT&E,N/ BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604756N SHIP SELF DEFENSE	PROJECT NUMBER AND NAME 0167 / ROLLING AIRFRAME MISSILE		
B. Accomplishments/Planned Program				
	FY 06	FY 07	FY 08	FY 09
RAM Testing	0.734	0.000	0.000	0.000
RDT&E Articles Quantity				
FY06 funds Block 1 FOT&E and government MOD 3 testing and analysis.				
	FY 06	FY 07	FY 08	FY 09
RAM Block 1 Eng/Interface Support	0.100	0.507	0.592	0.290
RDT&E Articles Quantity				
FY06-09 funds on-going efforts in RAM engineering for emergent issues/obsolescence issues including EDS interface transition.				
	FY 06	FY 07	FY 08	FY 09
Improvement for Missile Deficiency	1.166	1.851	0.000	0.000
RDT&E Articles Quantity				
FY06-07 funds improvements of emergent RAM missile/launcher deficiencies.				
	FY 06	FY 07	FY 08	FY 09
Block 2	26.242	38.987	39.988	26.306
RDT&E Articles Quantity				
FY06-09 funds development of RAM Block 2 upgrade.				
	FY 06	FY 07	FY 08	FY 09
Travel	0.162	0.166	0.169	0.173
RDT&E Articles Quantity				
FY06-09 funds travel.				

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APPROPRIATION/BUDGET ACTIVITY RDT&E,N/ BA-5			PROGRAM ELEMENT NUMBER AND NAME 0604756N SHIP SELF DEFENSE			PROJECT NUMBER AND NAME 0167 / ROLLING AIRFRAME MISSILE		
C. OTHER PROGRAM FUNDING SUMMARY:								
<u>Line Item No. & Name</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>
OPN LINE 5238 (RAM)	25.542	10.934	3.990	23.489	7.897	12.076	5.102	0.088
WPN LINE 2242 (RAM)	85.778	56.646	79.540	74.923	77.055	88.414	90.198	92.019
D. ACQUISITION STRATEGY:								
Improvements of missile capability deficiency against emergent threat FY06-07; Block 2 development continues FY06-10.								
E. MAJOR PERFORMERS:								
Raytheon Systems Company - Tucson, AZ - RAM Prime Contractor for Development and Contractor Test and Evaluation. Award Dates: FY06 - 3/06; FY07 - 11/06; FY08 - 11/07; FY09 - 11/08								
Naval Air Weapons Center, China Lake - China Lake, CA - Missile ISEA supporting RAM development and testing.								
- Award dates are N/A, since funding will be provided under NAVSEA Seatask to field activity.								
Naval Surface Warfare Center, Port Hueneme - Port Hueneme, CA - Launcher ISEA supporting development, testing, integration and test ranges.								
- Award dates are N/A, since funding will be provided under NAVSEA Seatask to field activity.								

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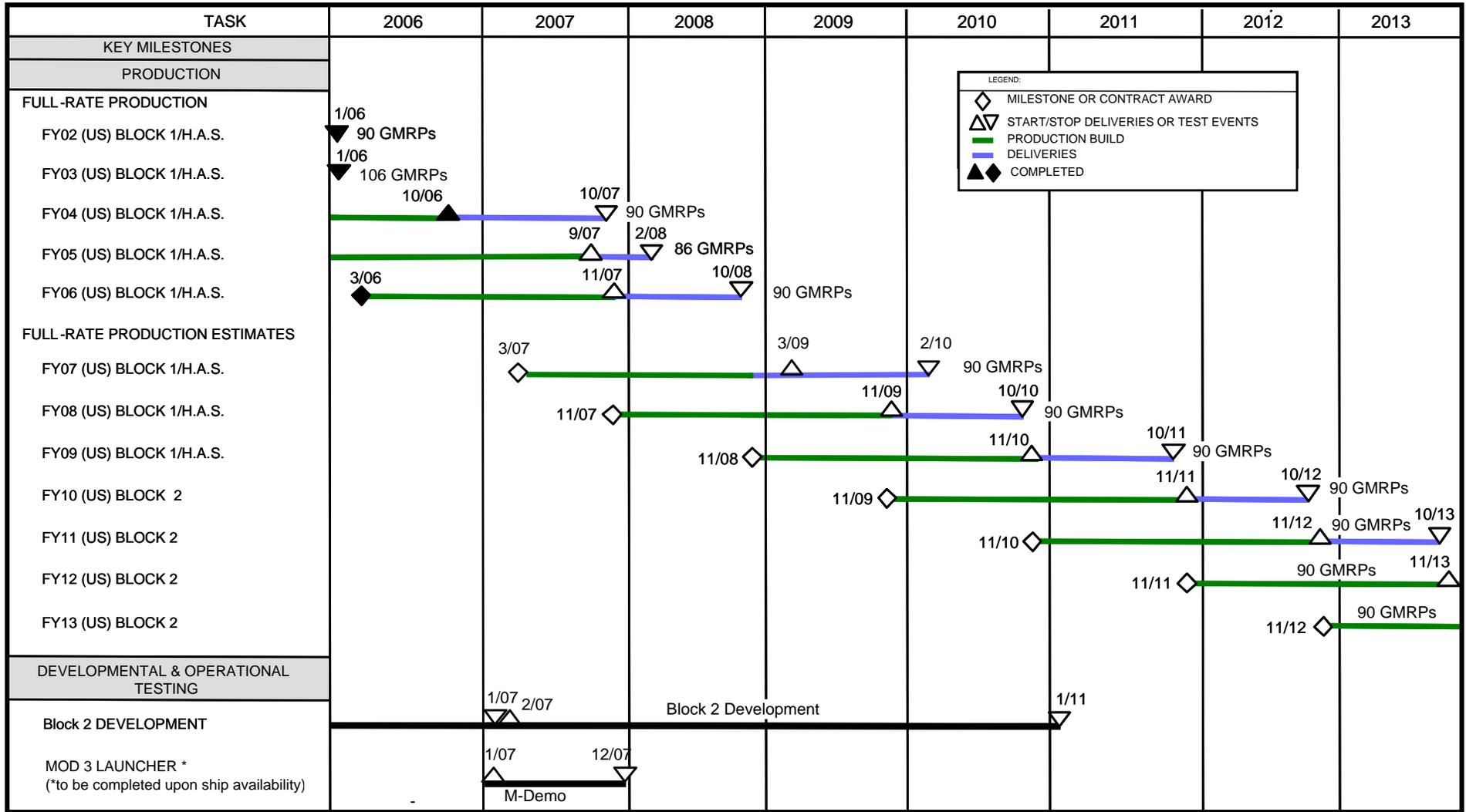
Exhibit R-3 Cost Analysis (page 1)											DATE: February 2007			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT					PROJECT NUMBER AND NAME						
RDT&E,N/ BA-5			0604756N SHIP SELF DEFENSE					0167 / ROLLING AIRFRAME MISSILE						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY06 Cost	FY06 Award Date	FY07 Cost	FY07 Award Date	FY08 Cost	FY08 Award Date	FY09 Cost	FY09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPFF	Raytheon Co, Tucson AZ & Louisville, KY	5.683	0.540	03/06	1.211	11/06	1.223	11/07	1.247	11/08	Continuing	Continuing	
Primary Hardware Dev Spt	WX	NAWC/China Lake		0.626	01/06	0.640	11/06	0.653	11/07	0.666	11/08	Continuing	Continuing	
Block 1 MOD 3 Eng/Interface Spt	SS/CPFF	Raytheon Co, San Diego				0.400	11/06	0.408	11/07	0.416	11/08	Continuing	Continuing	
Block 1 MOD 3 Interface Spt	CPFF	JHU/APL	0.774	0.100	01/06	0.300	11/06	0.300	11/07	0.300	11/08	Continuing	Continuing	
Block 2 upgrade	SS/CPAF	Raytheon Co, Tucson AZ & Louisville, KY	6.765	22.830	03/06	21.340	11/06	17.339	11/07	11.840	11/08	Continuing	Continuing	
Block 2 upgrade	WX	CL/NRL/DD	3.229	3.012	01/06	8.017	11/06	6.645	11/07	4.787	11/08	Continuing	Continuing	
Block 2 upgrade	CPFF	JHU/APL	0.300	0.400	01/06	0.400	11/06	0.400	11/07	0.200	11/08	Continuing	Continuing	
Subtotal Product Development			16.751	27.508		32.308		26.968		19.456		Continuing	Continuing	
Development Support														
Software Development														
Integrated Logistics Support														
Configuration Management														
Technical Data														
Studies & Analyses						0.600	01/07	0.610	01/08	0.630	01/09			
GFE														
Award Fees														
Subtotal Support			0.000	0.000		0.600		0.610		0.630		0.000	0.000	
Remarks:														

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2007				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME							
RDT&E,N/ BA-5			0604756N SHIP SELF DEFENSE				0167 / ROLLING AIRFRAME MISSILE							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY06 Cost	FY06 Award Date	FY07 Cost	FY07 Award Date	FY08 Cost	FY08 Award Date	FY09 Cost	FY09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
DT&E/OT&E/FOT&E/CTE	SS/CPAF	Raytheon Co, Tucson AZ & Louisville, KY	2.284									Continuing	Continuing	
FOT&E	WX	China Lake CA, PHD CA	4.674			0.507	11/06	0.592	11/07	0.290	11/08	Continuing	Continuing	
Test Support	WX	China Lake CA, PHD CA		0.734	01/06	7.930	11/06	12.410	11/07	6.220	11/08	Continuing	Continuing	
CTE Support	WX	NSWC/PHD CA												
Miscellaneous		Various	1.421											
Subtotal T&E			8.379	0.734		8.437		13.002		6.510		Continuing	Continuing	
Contractor Engineering Support														
Government Engineering Support														
Program Management Support														
Travel			0.156	0.162	01/06	0.166	11/06	0.169	11/07	0.173	11/08	Continuing	Continuing	
Transportation														
SBIR Assessment														
Subtotal Management			0.156	0.162		0.166		0.169		0.173		Continuing	Continuing	
Total Cost			25.286	28.404		41.511		40.749		26.769		Continuing	Continuing	

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EXHIBIT R4, Schedule Profile		DATE:	February 2007
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME	
RDT&E,N/ BA-5	0604756N SHIP SELF DEFENSE	0167 / ROLLING AIRFRAME MISSILE	



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Exhibit R-4a, Schedule Detail						DATE: February 2007		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/ BA-5	PROGRAM ELEMENT 0604756N SHIP SELF DEFENSE				PROJECT NUMBER AND NAME 0167 / ROLLING AIRFRAME MISSILE			
Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FY02 FRP Deliveries	1Q-2Q							
FY03 FRP Deliveries	1Q-2Q							
FY04 FRP Deliveries		1Q-4Q	1Q					
FY05 FRP Deliveries		4Q	1Q-2Q					
FY06 FRP Contract Award	2Q							
FY06 FRP Deliveries			1Q-4Q	1Q				
FY07 FRP Contract Award		2Q						
FY07 FRP Deliveries				2Q-4Q	1Q-2Q			
FY08 FRP Contract Award			1Q					
FY08 FRP Deliveries					1Q-4Q	1Q		
FY09 FRP Contract Award				1Q				
FY09 FRP Deliveries						1Q-4Q	1Q	
FY10 FRP Contract Award					1Q			
FY10 FRP Deliveries							1Q-4Q	1Q
FY11 FRP Contract Award						1Q		
FY11 FRP Deliveries								1Q-4Q
FY12 FRP Contract Award							1Q	
FY12 FRP Deliveries								
FY13 FRP Contract Award								1Q
M-Demo		2Q-4Q	1Q					
Block 2 Development	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-2Q			
Block 2 DT/OT					3Q-4Q	1Q-2Q		

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2007		
APPROPRIATION/BUDGET ACTIVITY RDT&E, BA-5		PROGRAM ELEMENT NUMBER AND NAME SHIP SELF DEFENSE(Engage: Hard Kill) 0604756N			PROJECT NUMBER AND NAME NATO SEASPARROW/0173				
COST (\$ in Millions)		FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost		5.745	4.699	20.280	9.721	7.329	7.018	7.805	5.187
RDT&E Articles Qty									
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION</p> <p>This project encompasses two (3) primary efforts to enhance ship self defense:</p> <ol style="list-style-type: none"> 1. (U) EVOLVED SEASPARROW MISSILE (ESSM): A cooperative effort among 10 NATO SEASPARROW Nations, including the U.S., to improve the capability of the SEASPARROW Missile to counter the low altitude, highly maneuverable Anti-Ship Cruise Missile threat. The program consists of evolving the SEASPARROW Missile through the development of a new rocket motor with tail control; thrust vector control and ordnance (warhead) upgrade; modifications to the MK 41 VLS to fire from a single cell with 4 ESSM (QuadPack); and modifications to the NATO SEASPARROW Missile System (NSSMS) to provide ESSM capability. 2. (U) NATO SEASPARROW - MK 91 Rearchitecture/SDSMS: The MK 91 Rearchitecture Program integrates NSSMS into the Ship Self Defense System (SSDS) Architecture to provide ship missile defense utilizing an open architected system. This effort consists of combining the Firing Officer Console and Radar Set Console functionality into a single Advanced Display System Console (AN/UYQ-70); modifying the Signal Data Processor and eliminating the MK 157 Computer Signal Data Converter and System Evaluation and Trainer, and redistributing this functionality within SSDS compatible microprocessors. This approach will eliminate the analog, point-to-point architecture, limited input-output channel and computer processing reserve deficiencies resident in the existing MK 57 NSSMS, and is required for ESSM. This modification also allows for full exploitation of the capabilities of the future ESSM and provides significant reductions (over 50%) in NSSMS cost of ownership and manning requirements. 3. (U) Amphibious Self-Defense AAW Probability of Rapid Annihilation (PRA) Improvement- The Amphibious Self-Defense AAW PRA Improvement program provides the L-Class Amphibious ships (LHA, LHD, LSD) with an improved PRA through full integration of the weapons and sensors of the combat system. This improvement introduces the Multi-Sensor Integration (MSI) unit that receives fire control and sensor data from ship radars, fuses them into an integrated radar picture and provides "composite" track reports to the combat system. Mk 15 CIWS is upgraded to a Block 2 configuration with a much improved search and track radar. No longer stand-alone, CIWS will be integrated into the sensor suite and provide fire control quality search and track data to the combat system via the MSI unit. As a fallback measure, CIWS Blk 2 can also report directly to the MK 23 Target Acquisition Radar Threat Evaluation Weapons Assignment (TEWA) providing fire control quality track data at a very fast update rate for targets to the horizon. TAS itself will receive an upgrade of its OSM unit to accommodate direct inputs from both the MSI and CIWS units. This improvement program provides full integration of the combat system and will meet or exceed threat detection and designation requirements through 2020. Use of the MSI will provide stable track data through a composite track picture reported to the combat system. Without this improvement, PRA of the L-Class ships would continue to degrade to an unsatisfactory point in the mid term. 									

EXHIBIT R-2a, RDT&E Project Justification	DATE: February 2007
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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME SHIP SELF DEFENSE(Engage: Hard Kill) 0604756N	PROJECT NUMBER AND NAME NATO SEASPARROW/0173
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B. Accomplishments/Planned Program

	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	3.057	3.224	8.084	8.703
RDT&E Articles Quantity				

Continued AEGIS S Band development. Conducted U.S. Unique DT-IIC/OT-IIC firings on SDTS and TECHEVAL/OPEVAL (DT-IIE/OT-IID) on AEGIS platforms. Correct engineering deficiencies identified as a result of TECHEVAL / OPEVAL. Provides funding for the ESSM S2S/HOH firings and firings associated with DT/OT on Aegis/DDG platforms. This provides for the U.S. share of Cooperative efforts associated with ESSM engineering studies and other development Initiatives.

	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	1.200	0.500		
RDT&E Articles Quantity				

Development: Utilizing existing technology and the Mk 29 Trainable Launcher, develop a program for the adaptation and U.S. certification of the launching system and make available for U.S. Navy deployment. Provide for the development to accommodate Evolved SEASPARROW Missiles which will provide full dimensional protection against the evolutionary threat of ASCMs on non-AEGIS platforms.

	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost			11.200	
RDT&E Articles Quantity				

FY08 Amphibious Self-Defense AAW improvement for LHD 1-6 and LHA class ships Leveraging the MK 15 CIWS Blk 2 upgrade program, the MSIT unit developed for the Self-Defense Test Ship and the RAM MOD 3 Launcher upgrade program, L-Class PRA will be greatly enhanced. Improvements to the MK 23 TAS made to support and integrate the RAM Mod 3 Launcher will be leveraged to integrate the MSI unit and the CIWS Blk 2 GFCS. The MSI will have the greatest positive impact on PRA as composite track data will be developed and provided to the combat system. The short range air radar picture will be significantly improved through the use of the CIWS upgraded search and track radar providing track data at a very fast update rate.

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B. Accomplishments/Planned Program (Cont.)

	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.750	0.000	0.000	
RDT&E Articles Quantity				

FY06 SSDS Post Integration: Building upon the current NSSMS MK 57 Mod 4 - 9 upgrade (Re-architected NSSMS) that provided an initial capability with SSDS MK 2 in support of the Maritime Force Protection (MFP) program, evolve the fire control system component to implement the additional organic capabilities required by the MFP Performance & Compatibility Requirements (P&CR) for CVNs. This effort will maintain compatibility with RNSSMS and evolving Next Generation Ship Defense post SSDS Mk 2, fully exploit RNSSMS performance capabilities, and develop RNSSMS capabilities consistent with the full-approved Integration Specifications. It will also support the evolutionary weapons and control system development to counter future evolving threats. Efforts scheduled for completion in FY 06.

	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.738	0.975	0.996	1.018
RDT&E Articles Quantity				

FY06-09 Provides funding for the Combat System Integration Technical Direction Agent (TDA) who will provide engineering support for combat system performance and risk mitigation. The TDA will leverage its technical expertise & leadership to cover a broad range of activities such as defining near-term and future requirements for current systems and future upgrades, maintain system performance models to evaluate system improvements, threat changes and operational environment conditions, verify models and simulations to promote program success through application of rigorous and disciplined systems engineering principles and practices in a consistent manner across system elements over the program life cycle, make prudent use of authoritative technical expertise for advice and independent review, identify a range of technically acceptable alternatives to resolve engineering issues, assist in development of T&E planning, and continue to maintain NSPO essential research and engineering capabilities and corporate memory.

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C. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</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>	-
WPN BA-2 Other Missiles, Evolved SEASPARROW (ESSM) (230700)		98.5	99.2	83.3	85.8	75.2	15.5	15.8	16.1	
OPN BA-4 NATO SEASPARROW (523700, 523705)		42.1	4.6	28.8	12.4	14.0	13.9	13.0	13.2	
Related RDT&E:		PE 0603609N (Conventional Munitions) PE 0604307N (AEGIS Combat System Engineering) PE 0604755N (K2178 Quick Reaction Combat Capability (QRCC))								
D. ACQUISITION STRATEGY:										
ESSM is a directed sole source contract to Raytheon Missile Systems Company for LRIP, and upon successful completion of TECHEVAL/OPEVAL in FY 03, entered into Full Rate Production FY 04. The MK 29 ESSM Launcher Upgrade and REARC/SSDS Intergration effort was a directed sole source contract to Raytheon Company (IDS).										
E. MAJOR PERFORMERS:										
1. Raytheon Missile Co. Tuscon 2/04, 11/04 ESSM Testing/ Engineering support 2. Raytheon Company (IDS) Portsmouth R.I. - MK 29 GMLS/ESSM Dev 2/04 -2/05 3. Naval Air Weapons Center China Lake, Point Mugu CA - Missile TDA supporting Development/Testing Funding under SEATASKs to field activities 10/04, 1/06 4. Naval Surface Warfare Center - Port Hueneme CA., Dahlgren Va - provide ISEA support to ESSM in development testing. Dahlgren - Performs safety analysis/Development testing.										

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2007						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-5			SHIP SELF DEFENSE(Engage: Hard Kill) 0604756N			NATO SEASPARROW/0173								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 06 Cost	FY 06 Award Date	FY07 Cost	FY 07 Award Date	FY08 Cost	FY 08 Award Date	FY09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
ESSM-Primary Hardware Development	LC/CPAF	RAYTHEON	143.356									Continuing	Continuing	
	RX	TDW	3.746										3.746	3.746
Amphin Self-defense PRA Imp		VARIOUS	0.000					11.200	11/06				11.200	11.200
Ancillary Hardware Development	CPAF	LOCKHEED/UDLP	46.706										46.706	46.706
Systems Engineering	VARIOUS	VARIOUS	22.622										22.622	22.622
MK 29/ESSM Launcher Upgrade	LC/CPAF	RAYTHEON SYS	7.946	0.575	01/06								8.521	8.521
NATO-Primary Hdwe Dev	CPFF	RAYTHEON SYS	30.627											30.627
Software development / Test	CPFF	RAYTHEON SYS	4.981	1.289	01/06	1.438	01/07	1.438	01/08	1.438	10/09	Continuing	Continuing	
Systems Engineering/Firing Spt		VARIOUS	5.306											5.306
SSDS Integration	CPFF	RAYTHEON SYS	12.235	0.750	01/06							Continuing	Continuing	
Subtotal Product Development			277.525	2.614		1.438		12.638		1.438		Continuing	Continuing	
Remarks:														
ESSM / NATO														
Integrated Logistics Support	WR	NSWC PHD	3.568									0.000	3.568	
Engr Support	WX	VARIOUS	4.207									0.000	4.207	
MK 29/ESSM Launcher Upgrade	WX	Dahlgren/PHD	0.375									0.000	0.375	
Engr Support	WX	VARIOUS	0.195									Continuing	Continuing	
NATO-MK 91/SSDS Integ	WX	Dahlgren/PHD	0.834									0.000	0.834	
Engr Support	WX	VARIOUS	6.364									0.000	6.364	
Engr Support	WX	NSWC PHD	0.235	0.145	01/06	0.185	10/06	0.285	10/07	0.285	10/08	Continuing	Continuing	
Subtotal Support			15.778	0.145		0.185		0.285		0.285		Continuing	Continuing	
Remarks:														

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2007				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME							
RDT&E, N / BA-5			SHIP SELF DEFENSE(Engage: Hard Kill) 0604756N				NATO SEASPARROW/0173							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWC CL	13.653										13.653	
OPEVAL/TECHEVAL/Test Firings	WR	VARIOUS(Corona, IHD,Dalhgren,NSWC PHD)	8.683	1.588	01/06	1.707	01/07	1.728	01/08	1.718	01/09	0.000	15.424	
Developmental Test & Evaluation	CPFF	APL	1.464	0.279	01/06	0.267	12/06					Continuing	Continuing	
ESSM Carrier T&E	VARIOUS	VARIOUS	0.000					4.179	10/07	4.770	10/08			
Developmental Test & Evaluation	WR	DALHGREN	0.418									0.418	0.418	0.418
Subtotal T&E			24.218	1.867		1.974		5.907		6.488		Continuing	Continuing	
Remarks:														
ESSM-ENGR SPT	WX	VARIOUS	4.913											
ESSM-PM SPT	WX	VARIOUS	0.498											
ESSM-LABOR	PD/WX		7.573	0.869	01/06	0.870	10/06	1.100	10/07	1.160	10/08	Continuing	Continuing	
ESSM - TRAVEL	PD/WX		2.022	0.000	01/06	0.162	10/06	0.180	10/07	0.180	10/08	Continuing	Continuing	
ESSM- MISC	VARIOUS	VARIOUS	2.065									Continuing	Continuing	
NATO TRAVEL/MISC	0	VARIOUS	1.691	0.250	01/06	0.070	10/06	0.170	10/07	0.170	10/08	Continuing	Continuing	
Subtotal Management			18.762	1.119		1.102		1.450		1.510		Continuing	Continuing	
Remarks:														
Total Cost			336.283	5.745		4.699		20.280		9.721		Continuing	Continuing	
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-5		SHIP SELF DEFENSE(Engage: Hard Kill) 0604756N			NATO SEASPARROW/0173		
Activity Name	FY06	FY07	FY08	FY09	FY10	FY11	
Production / In -Service • Major Milestone							
• First of Class Firings		Mid FY07 US CV/CVN US CG NE DC IV/APAR 5/06 US FOT&E NO 10/06 AT FFG					
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> GR - Approx CY07 TK - To Be Determined SP - CY08 US - DD(X) Approx FY12 US - CVN 21 To Be Determined </div>							
<i>Production MOU</i>							
<u>Buy Yr</u>							
FY00							
FY01							
FY02							
FY03/04	Delivery	10/06					
FY05/06		11/06	Delivery	10/08			
FY07/08	11/06	CA		11/08	Delivery	10/10	
FY09/10				11/08	CA	11/10	
Expiration of Production MOU						Delivery	
<i>Third Party Sales Production</i>							
<u>Buy Yr</u>							
FY04	Delivery	5/06					

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: February 2007		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				PROJECT NUMBER AND NAME NATO SEASPARROW/0173 (ESSM)			
Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Functional Configuration Audit (FCA)							
MK 29 /ESSM Launcher SDTS		1Q					
DT-IIC/OT-IIC Aegis	2Q						
ESSM S2S/HOH Firing		2Q					
Test Firings		2Q					
MK 29 /ESSM Launcher CVN Test Event		2Q					
MK 29 /ESSM Launcher SDTS			2Q				
AEGIS CG DT/OT			2Q	2Q			
SDTS Firings					2Q		
DDX Test Support						2Q	
Low-Rate Initial Production I Delivery							
Low-Rate Initial Production II Delivery							
IOC							
Full Rate Production (FRP) Decision							
Full Rate Production Start							
First Deployment							
FY06 PROCUREMENT	1Q						
FY 07 PROCUREMENT		1Q					
FY 08 PROCUREMENT			1Q				
FY 09 PROCUREMENT				1Q			
FY 03/04 DELIVERY	3Q-4Q						
FY 05 DELIVERY		1Q-4Q					
FY06 DELIVERY			1Q-4Q				
FY07 DELIVERY				1Q-4Q			
FY 08 DELIVERY					1Q-4Q		
FY 09 DELIVERY						1Q-4Q	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/ BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604756N SHIP SELF DEFENSE-ENGAGE				PROJECT NUMBER AND NAME 9081 - PHALANX CIWS SEARAM			
COST (\$ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	9.763	0.000	6.337	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty								
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The purpose of this ECP effort is to combine the PHALANX CIWS radar with the Rolling Airframe Missile (RAM) Block 1/2 Missile System. The overall SeaRAM strategy is to field a low-risk-development cost system utilizing the proven capabilities and infrastructure of the RAM and PHALANX CIWS systems. This U.S. Navy SeaRAM development leverages the successful demonstration by the United Kingdom of an industry prototype system aboard the HMS York. The SeaRAM ORDALT ECP will provide improved detection and performance capabilities in a stand-alone self-defense system that will defeat the near-term, stressing Anti-Ship Cruise Missile (ASCM) threats. FY06 funding completes development and testing of the ECP. FY08 funding is for combat system integration and testing of the Block 1B Baseline 2 (radar upgrade) into the L-Class CS suite.</p>								

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2007	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/ BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604756N SHIP SELF DEFENSE-ENGAGE	PROJECT NUMBER AND NAME 9081 - PHALANX CIWS SEARAM		
B. Accomplishments/Planned Program				
	FY 06	FY 07	FY 08	FY 09
SeaRAM Development/Phalanx Improvements	1.858	0.000	6.337	0.000
RDT&E Articles Quantity				
FY06 funding is used to complete development of the Phalanx CIWS ECP for a MK15 MOD 31 SeaRAM system. FY08 funding is for combat system integration and testing of the Phalanx CIWS Block 1B Baseline 2 (radar upgrade) into the L-Class CS suite.				
	FY 06	FY 07	FY 08	FY 09
SeaRAM Testing	7.805	0.000	0.000	0.000
RDT&E Articles Quantity				
FY06 Contractor Test and Evaluation, analysis, and planning for DT/OT.				
	FY 06	FY 07	FY 08	FY 09
Travel	0.100	0.000	0.000	0.000
RDT&E Articles Quantity				

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2007		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/ BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604756N SHIP SELF DEFENSE-ENGAGE			PROJECT NUMBER AND NAME 9081 - PHALANX CIWS SEARAM			
C. OTHER PROGRAM FUNDING SUMMARY:								
<u>Line Item No. & Name</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>
OPN LINE 5238 (RAM)	25.542	10.934	3.990	23.489	7.897	12.076	5.102	0.088
WPN LINE 2242 (RAM)	85.778	56.646	79.540	74.923	77.055	88.414	90.198	92.019
D. ACQUISITION STRATEGY:								
SeaRAM Development and Testing								
E. MAJOR PERFORMERS:								
Raytheon Systems Company - Tucson, AZ and Louisville, KY - SeaRAM Prime Contractor for Development. Award Date: FY06 - 6/06; FY08 - 3/08								
Naval Air Weapons Center, China Lake - China Lake, CA - Supporting SeaRAM development and testing.								
- Award dates are N/A, since funding will be provided under NAVSEA Seatask to field activity.								
Naval Surface Warfare Center, Port Hueneme - Port Hueneme, CA - Supporting development, testing, integration and test ranges.								
- Award dates are N/A, since funding will be provided under NAVSEA Seatask to field activity.								

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: February 2007			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NUMBER AND NAME								
RDT&E/N/ BA-5		0604756N SHIP SELF DEFENSE (ENGAGE: HARD KILL)				9081 - PHALANX CIWS SEARAM								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY06 Cost	FY 06 Award Date	FY07 Cost	FY 07 Award Date	FY08 Cost	FY 08 Award Date	FY09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPFF	Raytheon Co, Tucson AZ & Louisville, KY	18.180	0.858	6/06	0.000		5.337	3/08	0.000			24.375	
Ancillary Hardware Development														
Aircraft Integration														
SeaRAM Engineering		NSWC DD/PHD/LOU	0.382	0.500	11/05	0.000		0.500	11/07	0.000			1.382	
Ship Suitability														
Systems Engineering	FFP	EG&G	0.500	0.500	11/05	0.000		0.250	11/07	0.000			1.250	
Training Development														
Studies/Analysis	CPFF	APL	0.500		6/06	0.000		0.250	11/07	0.000			0.750	
Tooling														
GFE														
Award Fees														
Subtotal Product Development			19.562	1.858		0.000		6.337		0.000			27.757	
Remarks:														
Development Support														
Software Development														
Integrated Logistics Support														
Configuration Management														
Technical Data														
Studies & Analyses														
GFE														
Award Fees														
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	
Remarks:														

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: February 2007			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NUMBER AND NAME								
RDT&E,N/ BA-5		0604756N SHIP SELF DEFENSE (ENGAGE: HARD KILL)				9081 - PHALANX CIWS SEARAM								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Test & Evaluation	SS/CPFF	Raytheon Co, Tucson AZ & Louisville, KY	0.612	1.333	6/06								1.945	
CT,DT&E, OT	WX	NSWC/PHD & China Lake	0.956	6.472	11/05								7.428	
Live Fire Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			1.568	7.805		0.000		0.000		0.000			9.373	
Remarks:														
Contractor Engineering Support														
Government Engineering Support														
Program Management Support														
Travel			0.030	0.100									0.130	
Transportation														
SBIR Assessment														
Subtotal Management			0.030	0.100		0.000		0.000		0.000			0.130	
Remarks:														
Total Cost			21.160	9.763		0.000		6.337		0.000			37.260	
Remarks:														

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/ BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604756N SHIP SELF DEFENSE (ENGAGE: HARD KILL)	PROJECT NUMBER AND NAME 9081 - PHALANX CIWS SEARAM

Fiscal Year	2006	2007	2008	2009	2010	2011	2012
Testing CTE/NTE	▲	▽					
Testing DT		▲	▽				
Amphib PRA Integration			▲	▽			

◇	Milestone Contract Award
△▽	Start/Stop Deliveries Or Test Events
▲	Completed

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604756N SHIP SELF DEFENSE	PROJECT NUMBER AND NAME 9999 / Congressional Adds: various

CONGRESSIONAL PLUS-UPS:

	FY 06	FY 07		
9853				
PHALANX CIWS future concepts	1.915	4.483		

FY06 Congressional Add provides funding for Phalanx CIWS future concepts studies. FY07 Congressional Add provides funding for Future Phalanx Next Generation Improvements.

	FY 06			
9854N				
PHALANX CIWS self-destructing	2.394			

FY06 Congressional Add provides funding for Phalanx CIWS self-destructing ammunition development.