

CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE:		
APPROPRIATION/BUDGET ACTIVITY							R-1 ITEM NOMENCLATURE		
RDT&E, N / 1319 / BA 5							AEGIS COMBAT SYS ENG / PE 0604307N		
COST (\$ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	184.843	326.625	300.748	212.601	189.352	215.402	173.220	CONT.	CONT.
Surf Combatant Combat Sys/K1447/K2637	178.448	255.459	291.425	201.193	144.614	151.316	109.138	CONT.	CONT.
Surf Combatant Weapon Sys Mod/K1776	3.975	4.262	4.352	4.443	4.528	4.617	4.708	CONT.	CONT.
Surf Combatant Weapons Dev/K1937	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	192.908
Smart Ship Project/K2308/K2786	2.420	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.903
Solid State SPY Radar/K3044	0.000	0.000	4.971	6.965	40.210	59.469	59.374	CONT.	CONT.
AEGIS Operational Readiness/K9064	0.000	3.965	0.000	0.000	0.000	0.000	0.000	0.000	3.965
Peripheral Consolidation/K9065	0.000	6.443	0.000	0.000	0.000	0.000	0.000	0.000	6.443
AEGIS Tactical Display/K9066	0.000	6.938	0.000	0.000	0.000	0.000	0.000	0.000	6.938
Navy Area Theater Transfer/K9067	0.000	48.567	0.000	0.000	0.000	0.000	0.000	0.000	48.567
Traveling Wave Tube Circuit/K9068	0.000	0.991	0.000	0.000	0.000	0.000	0.000	0.000	0.991

A. (U) Mission Description and Budget Item Justification

The AEGIS Combat System (ACS) provides immediate and effective capability to counter the current and expected air, surface, and sub-surface threats. Changes in the threat capability and advances in technology such as fiber optics, local area networks, and high performance computing require corresponding AEGIS Weapon System (AWS) and ACS changes. This program provides the ACS engineering and selected weapons development necessary for a continued increase in the capability of AEGIS Cruisers and Destroyers. In addition to developing and integrating improvements to the AWS, this program integrates combat capabilities developed in other Navy R&D programs into the ACS. Modifications of AWS computer programs must be made to integrate these capabilities into the ACS so that battle effectiveness and ACS performance will be retained against the evolving threat. Selected AWS and ACS upgrades will be backfit into CG 47 Class and DDG 51 Class ships already in the Fleet, providing key warfighting capability while reducing life cycle maintenance costs. In addition, with the advent of using Commercial Off-the-Shelf (COTS) equipment extensively throughout the combat system, a COTS refresh development effort will be necessary to pace the core baseline development work. Introduces AEGIS Baseline 7 Phase II Open Architecture (OA) effort, including rearchitected computer programs, to the AEGIS fleet. Baseline 7 Phase II positions the AEGIS fleet for maximum warfighting improvements and life cycle support benefit and produces a system, which is easy to maintain and modernize and mitigates the cost of inevitable required technology refresh. Includes development of a Solid State replacement for the SPY-1 radar, aimed at providing the increased sensitivity and bandwidth needed for long range ballistic missile defense.

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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / 1319 / BA 5		R-1 ITEM NOMENCLATURE AEGIS COMBAT SYS ENG / PE 0604307N	
B. Program Change Summary			
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>
FY 2002 President's Budget Submit:	200.330	262.037	
Appropriated Value:	202.184	329.537	
Adjustments to FY2001/2002 Appropriated Value/ Adjustments to:	-17.341	-2.912	
FY 2003 President's Budget Submit:	184.843	326.625	300.748
Funding:			
FY01: Funding changes are due to Below Threshold Reprogramming (BTR) to Ship Self Defense System (SSDS) and Evolved Sea Sparrow Missile (ESSM) (-\$8.636) , Small Business Innovation Research (SBIR)(-\$5.592), and other mining pricing adjustments (-\$3.113).			
FY02: Funding changes are due to an increase for AEGIS Operational Readiness Training System Network (ORTS) (+\$4.000), increase for AEGIS Peripheral Consolidation (+\$6.500), increase for AEGIS Tactical Display Upgrade (+\$7.000), Navy Area Theater Transfer (+\$49.000), increase for Traveling Wave Tube Circuit (+\$1.000), and other minor pricing adjustments (-\$2.912).			
Schedule: 1) Four COTS baseline refresh efforts have been added to the schedule because they require additional developmental efforts that necessitate replacement of commercial components to support updating operating systems, device drivers, and interfaces. COTS Refresh efforts have been added to the scope of Baseline 7 Phase IC (Two deliveries of Cruiser Conversion baseline), and two new baselines introduced to support DDG construction (Baseline 7 Phase I Refresh) and DDG Modernization (Baseline 6 Phase III Refresh).			

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EXHIBIT R-2a, RDT&E Project Justification					DATE: February 2002				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER				PROJECT NAME AND NUMBER:				
RDT&E, N / 1319 / BA 5	AEGIS COMBAT SYS ENG PE 0604307N				Surface Combatants Combat Sys Improv - K1447/K2637/K9065/K9066/K9067				
COST (\$ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	178.448	317.407	291.425	201.193	144.614	151.316	109.138	CONT.	CONT.
RDT&E Articles Qty									
<p>A. A. (U) Mission Description and Budget Item Justification: This program provides Cruiser and Destroyer ACS upgrades and integrates new equipment and systems to pace the threat and capture advances in technology. Examples of captured advanced technologies are: fiber optics, distributed architecture, and high performance computing, all of which require corresponding AWS and ACS changes. ACS are upgraded in baselines. Baseline 2 (CG 52-58) consists of the Vertical Launching System, TOMAHAWK Weapon System, and Anti-Submarine Warfare upgrades. Baseline 3 (CG 59-64) includes the AN/SPY-1B Radar and AN/UYQ-21 consoles. Baseline 4 (CG 65-73) integrates the AN/UUK-43/44 computers with superset computer programs developed for the DDG 51. Baseline 5 was introduced in FY 1992 ships and includes the Joint Tactical Information Distribution System (JTIDS) Command and Control Processor, Tactical Data Information Link 16, Combat Direction Finding, Tactical Data Information Exchange System, AN/SLQ-32 (V)3 Active Electronic Counter Countermeasures, and AEGIS Extended Range (ER) Missile. Baseline 5 was developed in three steps (phases): Phase I integrated AEGIS ER and supported the missile Initial Operational Capability; Phase II integrated system upgrades including Deceptive Electronic Countermeasures, Track Load Control algorithms, and Track Initiation Processor; Phase III integrated JTIDS and the OJ-663 color display Tactical Graphics Capability into the ACS. Baseline 6 Phase I supports OPEVAL of CEC in CGs 66 and 69 and will be introduced in the DDG 51 class beginning with the last ship in FY94, DDG 79. Baseline 6 Phase III is planned for the first ship in FY 1997, DDG 85. Baseline 6 upgrades will also include embarked helicopters, Fiber Optics as applied to Data Multiplexing (FODMS), implementation of affordability initiatives, the Radar Set Controller Environmental Simulator (RSCES) and Battle Force Tactical Trainer (BFTT), Advanced Display System, Evolved SEASPARROW Missile (ESSM), Identification (ID) upgrades Phase I, Advanced TOMAHAWK Weapon System (ATWCS) Phase II, Fire Control System Upgrades, and the Joint Maritime Command Information System (JMCIS). Baseline 7 Phase I is planned for the first MYP DDG-51 Class ship in FY 1998. Major Baseline 7 upgrades include but are not limited to AN/SPY-1D(V) Radar upgrade, COTS-based advanced computer processing and the Remote Mine Hunting System. The Cruiser Conversion program will upgrade cruisers with Land Attack, and Area Air Defense Commander (AADC) capabilities. Experiences aboard AEGIS ships and shore sites have shown that COTS equipment will require a nominal four year cyclical refresh (periodic replacement) plan. This is a fact of life. Currently, these refresh efforts are not "plug and play;" rather they require additional developmental efforts that will necessitate replacement of new components with updated operating systems, device drivers, and interfaces. COTS refresh efforts are required and have been funded for Baselines 6 Phase III, 7 Phase I, and 7 Phase IC (two variants of Cruiser Conversion baseline due to radar configuration). Introduces AEGIS Baseline 7 Phase II Open Architecture (OA) effort, including rearchitected computer programs, to the AEGIS fleet. Baseline 7 Phase II positions the AEGIS fleet for maximum warfighting improvements and life cycle support benefit and produces a system, which is easy to maintain and modernize and mitigates the cost of inevitable required technology refresh. Includes development of a Solid State replacement for the SPY-1 radar, aimed at providing the increased sensitivity and bandwidth needed for long range ballistic missile defense.</p>									

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EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / 1319 / BA 5	PROGRAM ELEMENT NAME AND NUMBER AEGIS COMBAT SYS ENG PE 0604307N	PROJECT NAME AND NUMBER: Surface Combatants Combat Sys Improv-K1447/K2637/K9065/K9066/K9067
<p>FY 2001 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> - (U) (\$.400) Completed modifications to the AWS computer program to allow incorporation of SM2 BLK IVA missile AAW capability . - (U) (\$5.500) Supported CEC OPEVAL (scheduled: 05/2001) on CGs 66 and 69. - (U) (\$42.042) Continued with extensive Baseline 6 Phase III ET&E and MEIT at CSEDS and the Production Test Center (PTC). Delivered program to shipyards for first stage testing in new construction ships. Conducted demo of 6 Phase III and Computer Program Acceptance Panel. Began preparations for TBMD DT/OT and ESSM DT/OT. Began developmental efforts for COTS refresh of Baseline 6 Phase III, evaluating integration of advanced warfighting capability upgrades into the AWS in order to meet the evolving threat. - (U) (\$51.156) Continued Coding, Debugging and Testing (CDT) for 7 Phase I computer program. Began developmental efforts for COTS refresh of Baseline 7 Phase I. - (U) (\$38.953) Continued development of the computer program for Cruiser Conversion in a Baseline 7 Phase I architecture which incorporates TBMD, AADC, and Land Attack capabilities and a COTS refresh into the Baseline 1 through 4 Cruisers. Updated System Design Review of the 7 Phase IC computer program. - (U) (\$21.572) Continued to provide the RDT&E share of operations of the CSED Site, Program Generation Center, Computer Program Test Site, and Land Based Test Site. - (U) (\$18.825) Provided fund for labs and field activities to support forward fit baseline upgrade in order to conduct engineering and scientific studies and analysis to minimize the risk in the introduction of increased warfighting capability including TBMD, CEC, ESSM, and AIEWS into the ACS. Studies produced by the Applied Physics Lab and the Naval Surface Warfare Center, Dahlgren Division (NSWC, DD) ensure effective introduction of COTS Technology. NSWC, DD personnel also provided on site technical support at contractor facilities during development, testing, and evaluation of upgrades to the ACS. <p>FY 2002 PLAN:</p> <ul style="list-style-type: none"> - (U) (\$20.540) Support TBMD Developmental Test (DT) and ESSM DT/Operational Testing (OT). (USD(AT&L) memo dated 14 December 2001 cancelled Area TBMD) - (U) (\$20.000) Analyze and assess candidate components to replace Diminishing Manufacturing Source (DMS) equipment for Baseline 6 Phase III COTS refresh and make final selection. Continue Designing, Coding, and Testing of Baseline 6 Phase III COTS refresh. - (U) (\$56.470) Continue with extensive Baseline 7 Phase I Engineering Test and Evaluation (ET&E) and Multi-Element Integration and Test (MEIT) at Combat Systems Engineering Development Site (CSEDS) and the Production Test Center (PTC). Deliver program to shipyards for first level testing in new construction ships. Conduct Engineering Assessment of Baseline 7 Phase I. - (U) (\$6.443) Conduct efforts to consolidate Peripheral Consolidation. - (U) (\$6.938) Conduct AEGIS Tactical Display Upgrade efforts. - (U) (\$48.567) Navy Area Theater Transfer to disable TBMD code in Baseline 6 Phase III and Baseline 7 Phase I, update documentation to include revised technical specifications, training, and ILS. Continue engineering and ship integration support and maintain quality infrastructure including site operations. - (U) (\$29.000) Analyze and assess candidate components to replace DMS equipment for Baseline 7 Phase I COTS refresh and make final selection. Continue Designing, Coding, and Testing of Baseline 7 Phase I COTS refresh. - (U) (\$90.000) Continue development of Baseline 7 Phase IC computer program for the Cruiser Conversion Program which incorporates AADC, and Land Attack capabilities into the Baseline 1 through 4 Cruisers. Conduct Preliminary Design Review. Analyze and assess candidate components to replace DMS equipment for 7 Phase IC COTS Refresh. Begin SPY Radar Engineering effort to support necessary SPY-1D(V) modifications. - (U) (\$22.261) Continue to provide the RDT&E share of operations and maintenance of the CSED site, Program Generation Center, Computer Program Test Site, and Land Based Test Site. 		

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<p>FY 2002 PLAN CONT:</p> <ul style="list-style-type: none"> - (U) (\$17.188) Provides funds for labs and field activities to support forward fit baseline upgrade in order to conduct engineering and scientific studies and analysis to minimize the risk in the introduction of increased warfighting capability including CEC, ESSM, and AIEWS into the ACS. Studies produced by the Applied Physics Lab and the NSWC, DD ensure effective introduction of COTS. NSWC, DD personnel also provide on site technical support at contractor facilities during development, testing, and evaluation of upgrades to the ACS. <p>FY 2003 PLAN:</p> <ul style="list-style-type: none"> - (U) (\$6.355) Continue maturation of Baseline 6 Phase III computer program in support of ESSM DT/OT. Implement quality standard by increasing development time in an effort to reduce CPCR count and number of deficiency workarounds. - (U) (\$17.000) Replace DMS equipment with carefully selected components for Baseline 6 Phase III COTS Refresh . Continue coding, debugging and testing of Baseline 6 Phase III COTS Refresh. - (U) (\$68.610) Incorporate high priority computer program change requests for Baseline 7 Phase I in support of the Land Based DT/OT of SPY-1D(V) and to continue maturation of 7 Phase I in support of At Sea SPY-1D(V) DT/OT. Implement quality standard by increasing development time in an effort to reduceCPCR count and number of deficiency workarounds. - (U) (\$35.500) Conduct regression testing of Baseline 6 Phase III and Baseline 7 Phase I to verify and validate disabled TBMD code. Continue engineering and ship integration support and maintain quality infrastructure including site operations. - (U) (\$13.171) Introduce AEGIS Baseline 7 Phase II Open Architecture (OA) effort, including rearchitected computer programs. Conduct software requirements review. - (U) (\$21.600) Replace DMS equipment with carefully selected components for Baseline 7 Phase I COTS Refresh . Continue coding, debugging and testing of Baseline 7 Phase I COTS Refresh necessary for fielding DDGs 102-107. - (U) (\$4.100) Provides the initial funds necessary to allow for the implementation of the SIAP Blk 0 correlation/development ICP into AEGIS Baselines. - (U) (\$86.451) Continue development of Baseline 7 Phase IC computer program for the Cruiser Conversion Program which incorporates AADC and Land Attack capabilities into the Baseline 1 through 4 Cruisers. Replace DMS equipment with carefully selected components for 7 Phase IC COTS Refresh. Prepare for and conduct Critical Design Review. Begin SPY Radar Engineering effort to support necessary SPY-1A modifications to include a D(V) signal processor for Baseline I and II Cruiser Conversion. Begin integration efforts for Evolutionary warfighting capabilities. - (U) (\$21.620) Continue to provide the RDT&E share of operations and maintenance of the CSED site, Program Generation Center, Computer Program Test Site, and the Land Based Test Site. - (U) (\$17.018) Provides funds for lab and field activities to support forward fit and back fit baseline upgrades. Conduct engineering/scientific studies and analyses to minimize the risk in the introduction of increased warfighting capability including CEC, ESSM, and AIEWS into the AEGIS Combat System. Studies produced by the Applied Physics Lab and the NSWC, DD ensure effective introduction of COTS Technology. NSWC-DD personnel also provide on site technical support at contractor facilities during development, testing, and evaluation of upgrades to the ACS. 		

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<p>B. Other Program Funding Summary:</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>FY 2003</u></th> <th style="width: 10%; text-align: center;"><u>FY 2004</u></th> <th style="width: 10%; text-align: center;"><u>FY 2005</u></th> <th style="width: 10%; text-align: center;"><u>FY 2006</u></th> <th style="width: 10%; text-align: center;"><u>FY 2007</u></th> <th style="width: 10%; text-align: center;"><u>To Complete</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>SCN LI2122 - DDG 51*</td> <td style="text-align: right;">3,282.387</td> <td style="text-align: right;">3,081.036</td> <td style="text-align: right;">2,369.502</td> <td style="text-align: right;">2,420.749</td> <td style="text-align: right;">2,371.558</td> <td style="text-align: right;">2,533.724</td> <td style="text-align: right;">2,582.399</td> <td style="text-align: center;">Cont.</td> <td style="text-align: center;">Cont.</td> </tr> <tr> <td>OPN LI5246 - AEGIS Supt. Eqp**</td> <td style="text-align: right;">43.824</td> <td style="text-align: right;">162.163</td> <td style="text-align: right;">155.654</td> <td style="text-align: right;">148.379</td> <td style="text-align: right;">137.363</td> <td style="text-align: right;">164.778</td> <td style="text-align: right;">155.762</td> <td style="text-align: center;">Cont.</td> <td style="text-align: center;">Cont.</td> </tr> </tbody> </table> <p>* TOA excludes outfitting and post delivery. ** FY01 includes \$10.5M plus-up for USS Cole</p> <p>Related RDT&E:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">PE 0604867C (Navy Area Missile Defense-EMD)</td> <td>PE 0604578N (Common C&D)</td> </tr> <tr> <td>PE 0603382N (Advanced Combat System Technology)</td> <td>PE 0603658N (Cooperative Engagement Capability)</td> </tr> <tr> <td>PE 0603868C (Navy Theater Wide Missile Defense)</td> <td>PE 0604755N/064756N/064757N (Ship Self Defense)</td> </tr> <tr> <td></td> <td>PE 0604366N (Standard Missile Improvements)</td> </tr> </table> <p>C. Acquisition Strategy: Combat System Improvements are implemented in Baselines as described in the project mission statement. In FY 1998, Lockheed Martin was awarded a five year omnibus contract (sole source) to develop and integrate combat system improvements, which will fund all remaining AEGIS Baseline Upgrade Development efforts. After the baseline has been completed and tested, the computer program and associated equipment are delivered to the new construction shipbuilders where the program and equipment are installed and tested along with all other elements of the shipboard combat system and associated combat support systems. The computer program is a GFE deliverable to the Production Test Center for equipment test and check out.</p>											<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Complete</u>	<u>Total Cost</u>	SCN LI2122 - DDG 51*	3,282.387	3,081.036	2,369.502	2,420.749	2,371.558	2,533.724	2,582.399	Cont.	Cont.	OPN LI5246 - AEGIS Supt. Eqp**	43.824	162.163	155.654	148.379	137.363	164.778	155.762	Cont.	Cont.	PE 0604867C (Navy Area Missile Defense-EMD)	PE 0604578N (Common C&D)	PE 0603382N (Advanced Combat System Technology)	PE 0603658N (Cooperative Engagement Capability)	PE 0603868C (Navy Theater Wide Missile Defense)	PE 0604755N/064756N/064757N (Ship Self Defense)		PE 0604366N (Standard Missile Improvements)
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Complete</u>	<u>Total Cost</u>																																						
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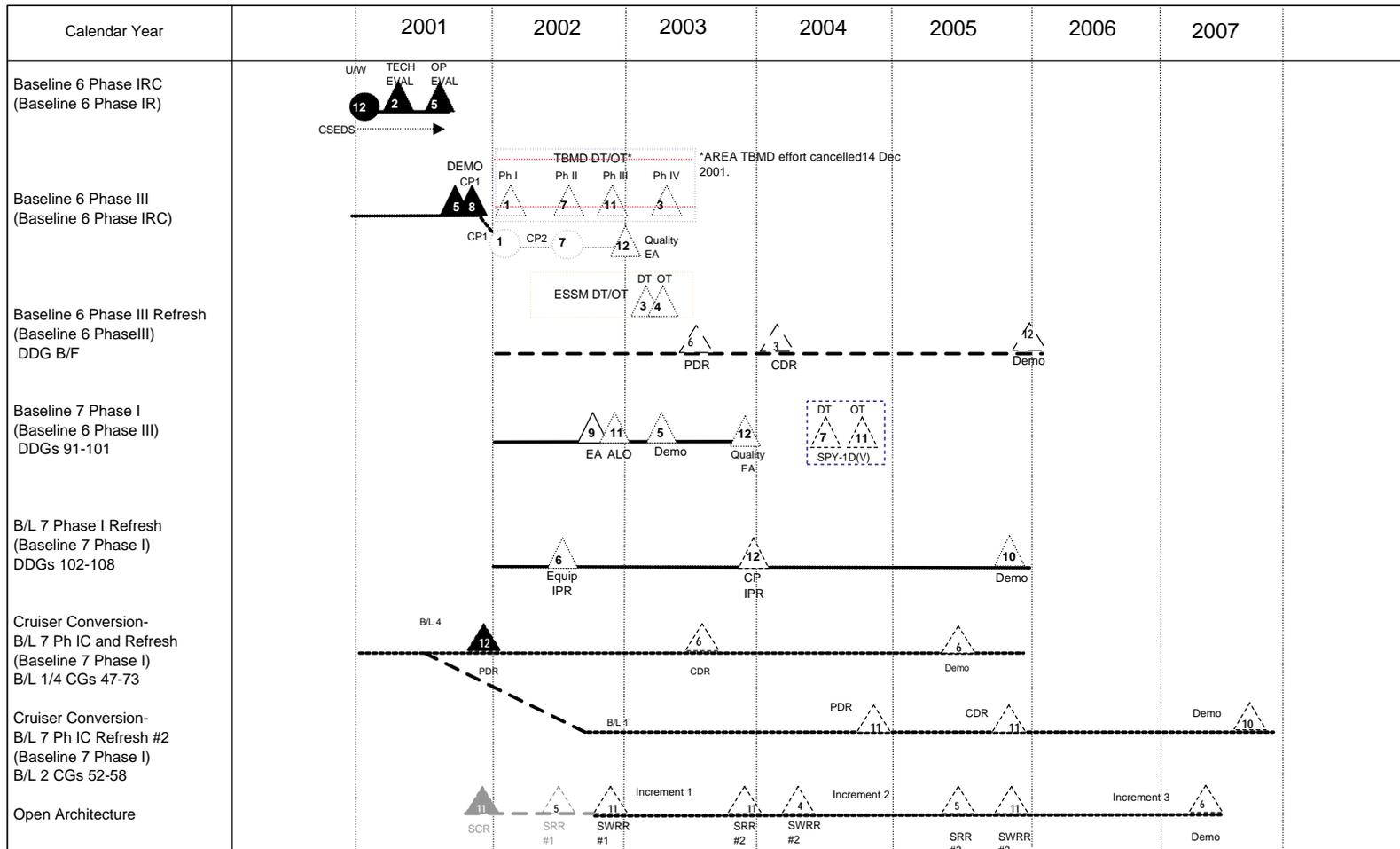
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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / 1319 / BA 5	PROGRAM ELEMENT NAME AND NUMBER AEGIS COMBAT SYS ENG PE 0604307N	PROJECT NAME AND NUMBER: Surface Combatants Combat Sys Improv-K1447/K2637/K9065/K9066/K9067

D. Schedule Profile:



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Exhibit R-3 Cost Analysis (page 1)										DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT NAME AND NUMBER			PROJECT NAME AND NUMBER:					
RDT&E, N / 1319 / BA 5				AEGIS COMBAT SYS ENG PE 0604307N			Surface Combatants Combat Sys Improv-K1447/K2637/K9065/K9066/K9067					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	SS/CPAF	Lockheed, Moorestown, NJ	394.849	109.092	03/01	218.606	03/02	225.312	03/03	CONT.	CONT.	
Systems Engineering	SS/CPFF	APL, Baltimore MD	22.007	2.100	10/00	2.500	10/01	1.672	10/02	CONT.	CONT.	
Systems Engineering	WR/RCP	NSWC, Dahlgren VA	45.686	13.000	12/00	16.271	12/01	14.310	12/02	CONT.	CONT.	
Systems Engineering	SS/CPAF	PCI, VA Beach, VA	2.325	2.325	03/01	3.300	03/02	3.300	03/03	CONT.	CONT.	
Systems Engineering	SS/CPAF	BAE Systems, Rockville MD	21.960	1.840	03/01	2.800	03/02	2.800	03/03	CONT.	CONT.	
Systems Engineering	WR/RCP	NWAS, Corona CA	1.100	0.703	11/00	2.250	11/01	1.290	11/02	CONT.	CONT.	
Systems Engineering	SS/CPAF	Litton	0.997	0.000	na	0.000	na	0.000	na	CONT.	CONT.	
Systems Engineering	SS/CPAF	Boeing	0.990	0.000	na	0.000	na	0.000	na	CONT.	CONT.	
Systems Engineering	SS/CPAF	General Dynamics	0.999	17.000	various	18.000	various	2.000	06/02	CONT.	CONT.	
Systems Engineering	RCP	SPAWAR	2.260	1.600	11/00	0.065	11/01	2.400	11/02	CONT.	CONT.	
Systems Engineering	CPFF	Techmatics	0.000	0.000	11/00	2.000	11/01	0.995	11/02	CONT.	CONT.	
Systems Engineering	WR/RCP	Miscellaneous	30.922	0.875	various	0.000	various	0.450	various	CONT.	CONT.	
Systems Engineering	WR/RCP	Dam Neck	0.000	0.000	na	6.443	various					
Award Fees	SS/CPAF	Lockheed, Moorestown, NJ	54.118	14.947	03/01	24.800	03/02	25.132	03/03	CONT.	CONT.	
Award Fees	SS/CPAF	BAE Systems, Rockville, MD	0.160	0.160	03/01	0.260	03/02	0.260	03/03	CONT.	CONT.	
Award Fees	SS/CPAF	PCI, VA Beach, VA	0.175	0.175	03/01	0.275	03/02	0.275	03/03	CONT.	CONT.	
Award Fees	WR/RCP	Miscellaneous	2.790	0.000	na	0.000	na	0.000	na	CONT.	CONT.	
Subtotal Product Development			581.338	163.817		297.570		280.196		CONT.	CONT.	
Remarks:												
Support	CPFF	APL, Baltimore MD	7.396	0.200	10/00	0.200	10/01	0.200	10/02	CONT.	CONT.	
Support	WR	NSWC, Pt. Hueneme, CA	0.434	1.050	11/00	3.017	11/01	1.000	11/02	CONT.	CONT.	
Support	WR	NSWC, Dahlgren VA	1.617	1.050	12/00	0.000	12/01		12/02	CONT.	CONT.	
Support	WR/RCP	Miscellaneous	5.928	0.581	various	0.000	various	0.000	various	CONT.	CONT.	
Subtotal Support			15.375	2.881		3.217		1.200		CONT.	CONT.	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NAME AND NUMBER			PROJECT NAME AND NUMBER:						
RDT&E, N / 1319 / BA 5			AEGIS COMBAT SYS ENG PE 0604307N			Surface Combatants Combat Sys Improv-K1447/K2637/K9065/K9066/K9067						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test and Evaluation	SS/CPAF	Lockheed, Moorestown, NJ	0.000	4.500	03/01	11.822	03/02	5.071	03/03	CONT.	CONT.	
Test and Evaluation	WR	NSWC, Pt. Hueneme, CA	2.100	1.984	11/00	2.000	11/01	2.100	11/02	CONT.	CONT.	
Test and Evaluation	CPFF	APL, Baltimore MD	0.000	3.000	10/00	0.500	10/01	0.500	10/02	CONT.	CONT.	
Test and Evaluation	WR/RCP	Miscellaneous	7.904	0.788	various	0.820	various	0.850	various	CONT.	CONT.	
Subtotal T&E			10.004	10.272		15.142		8.521		CONT.	CONT.	
Remarks:												
Program Management Support	WR/RCP	Miscellaneous	3.900	1.478	various	1.478	various	1.508	various	CONT.	CONT.	
			0.000									
Subtotal Management			3.900	1.478		1.478		1.508		CONT.	CONT.	
Remarks:												
Total Cost			610.617	178.448		317.407		291.425		CONT.	CONT.	
Remarks:												

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EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / 1319 / BA 5	PROGRAM ELEMENT NAME AND NUMBER AEGIS COMBAT SYS ENG PE 0604307N				PROJECT NAME AND NUMBER: Surface Combatant Weapon System Mod/K1776/K9064/K9068				
COST (\$ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
RDT&E Articles Qty	3.975	9.218	4.352	4.443	4.528	4.617	4.708	CONT.	CONT.
<p>A. (U) Mission Description and Budget Item Justification This program provides for modifications to the AWS MK-7 to counter the threat as articulated in ONI System Threat Assessment Report, ONI TA #046-93 dated May 1993 and subsequent updates. The modifications will be introduced into CG 47 Class and DDG 51 Class ships.</p> <p>FY 2001 ACCOMPLISHMENTS: - (U) (\$2.193) Continued Radar System Engineering Studies to enable AWS to meet the evolving threat. - (U) (\$0.334) Definitized signal processing requirements for a Common Moving Target Indicator (MTI)/TBMD adjunct processor design. - (U) (\$1.114) Continued ECMA upgrade effort and develop design package for transition to production. - (U) (\$0.334) Continued Operational Readiness Test System (ORTS) design efforts and support ECMA transition to production.</p> <p>FY 2002 PLAN: - (U) (\$2.964) Continue Radar System Engineering Studies to enable AWS to meet the evolving threat. - (U) (\$0.899) Continue ECMA upgrade effort and develop design package for transition to production. - (U) (\$0.399) Continue ORTS design efforts and support ECMA transition to production. - (U) (\$3.965) Initiate ORTS TAC-3 & TAC-4 updates. - (U) (\$0.991) Initiate Traveling Wave Tube Circuit efforts.</p> <p>FY 2003 PLAN: - (U) (\$2.334) Continue Radar System Engineering Studies to enable AWS to meet the evolving threat. - (U) (\$1.019) Initiate AWS Warfighting Improvements tasking. - (U) (\$0.600) Continue ECMA upgrade effort and develop design package for transition to production. - (U) (\$0.399) Initiate ORTS design efforts and support AWS Warfighting Improvements.</p>									

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EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / 1319 / BA 5		PROGRAM ELEMENT NAME AND NUMBER AEGIS COMBAT SYS ENG PE 0604307N			PROJECT NAME AND NUMBER: Surface Combatant Weapon System Mod, K1776					
B. Other Program Funding Summary:										
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	To <u>Complete</u>	Total <u>Cost</u>
SCN LI2122 - DDG 51*		3,282.387	3,081.036	2,369.502	2,420.749	2,371.558	2,533.724	2,582.399	Cont.	Cont.
OPN LI5246 - AEGIS Supt. Eqp**		43.824	162.163	155.654	148.379	137.363	164.778	155.762	Cont.	Cont.
* TOA excludes outfitting and post delivery.										
** FY01 includes \$10.5M plus-up for USS Cole										
Related RDT&E: Not applicable.										
C. Acquisition Strategy: Lockheed Martin is the sole producer of the AEGIS Weapon System (AWS) except for the AN/SPY-1 Radar transmitter and the MK 99 CWI transmitter and illuminator which are produced by Raytheon. It is anticipated that all AWS modifications will be procured from the original equipment manufacturer.										

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EXHIBIT R-2a, RDT&E Project Justification						DATE:	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / 1319 / BA 5		PROGRAM ELEMENT NAME AND NUMBER AEGIS COMBAT SYS ENG PE 0604307N			PROJECT NAME AND NUMBER: Surface Combatant Weapon System Mod/K1776		
D. Schedule Profile:							
	01	02	03	04	05	06	07
Radar System Engineering	Studies / Analysis / System Solution/ Proposed Equipment Mods. / Proposed C. P. Mods						
Common MTI/TBMD Processor	System Engineering						
ORTS Upgrades	Design / Build / Test / Debug						
ORTS TAC-3 & TAC-4	Design & Develop						
ECMA	Design, Dev., and Verification / Transition to Production						
AWS Warfighting Improvements	Surface Search for SPY-1D(V) / Enhanced Ultra Dynamic Test Target (DTT) Enhancements						
Traveling Wave Tube Circuit	System Engineering						

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Exhibit R-3 Cost Analysis (page 1)										DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NAME AND NUMBER				PROJECT NAME AND NUMBER:					
RDT&E, N / 1319 / BA 5			AEGIS COMBAT SYS ENG PE0604307				Surface Combatant Weapon System Mod/K1776					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	SS/CPAF	Lockheed, Moorestown, NJ	19.855	1.342	03/01	2.144		2.214		CONT.	CONT.	
Systems Engineering	WR/RCP	Naval Laboratories		0.980		0.700		0.700				
Systems Engineering		Wright Patterson AFB		0.106		0.144		0.148				
Systems Engineering	WR	Congressional Plus Ups		0.000		4.956						
Systems Engineering		Miscellaneous		1.272		0.970		0.986				
Award Fees	SS/CPAF	Lockheed, Moorestown, NJ	0.417	0.275	03/01	0.304	03/02	0.304	03/02	CONT.	CONT.	
Subtotal Product Development			20.272	3.975		9.218		4.352		CONT.	CONT.	
Remarks:												
Support	WR/RCP	Miscellaneous	1.060	0.000		0.000		0.000		CONT.	CONT.	
			0.000									
			1.060	0.000		0.000		0.000		CONT.	CONT.	
Remarks:												
Test & Evaluation	WR/RCP	Miscellaneous	0.000	0.000		0.000		0.000		CONT.	CONT.	
			0.000									
Subtotal T&E			0.000	0.000		0.000		0.000		CONT.	CONT.	
Remarks:												
Program Management Support	WR/RCP	Miscellaneous	0.000	0.000		0.000		0.000		CONT.	CONT.	
			0.000									
Subtotal Management			0.000	0.000		0.000		0.000		CONT.	CONT.	
Remarks:												
Total Cost			21.332	3.975		9.218		4.352		CONT.	CONT.	
Remarks:												

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EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER				PROJECT NAME AND NUMBER:				
RDT&E, N / 1319 / BA 5	AEGIS COMBAT SYS ENG PE 0604307N				Solid State SPY Radar - K3044				
COST (\$ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	0.000	0.000	4.971	6.965	40.210	59.469	59.374	CONT.	CONT.
RDT&E Articles Qty									
<p>A. (U) Mission Description and Budget Item Justification:</p> <p>The Solid State SPY Radar is being developed to support Theater Air and Missile Defense requirements as part of an S-Band and X-Band radar suite. The S-Band Solid State SPY Radar will provide multimission capabilities, supporting both long range, exoatmospheric detection, tracking and discrimination of ballistic missiles, as well as robust Area and Self Defense against air and surface threats. For the TBMD capability, increased radar sensitivity and bandwidth over the current SPY-1 system is needed to detect, track and support engagements of advanced theater ballistic missile threats at the required ranges. For the Area and Self Defense capability, increased sensitivity and clutter rejection capability is needed to detect, control, and engage stressing VLO/VLF threats in the presence of heavy land, sea, and rain clutter. This effort provides for the development of an S-Band solid state replacement for the SPY-1 Radar with the required capabilities to pace the evolving threat.</p>									

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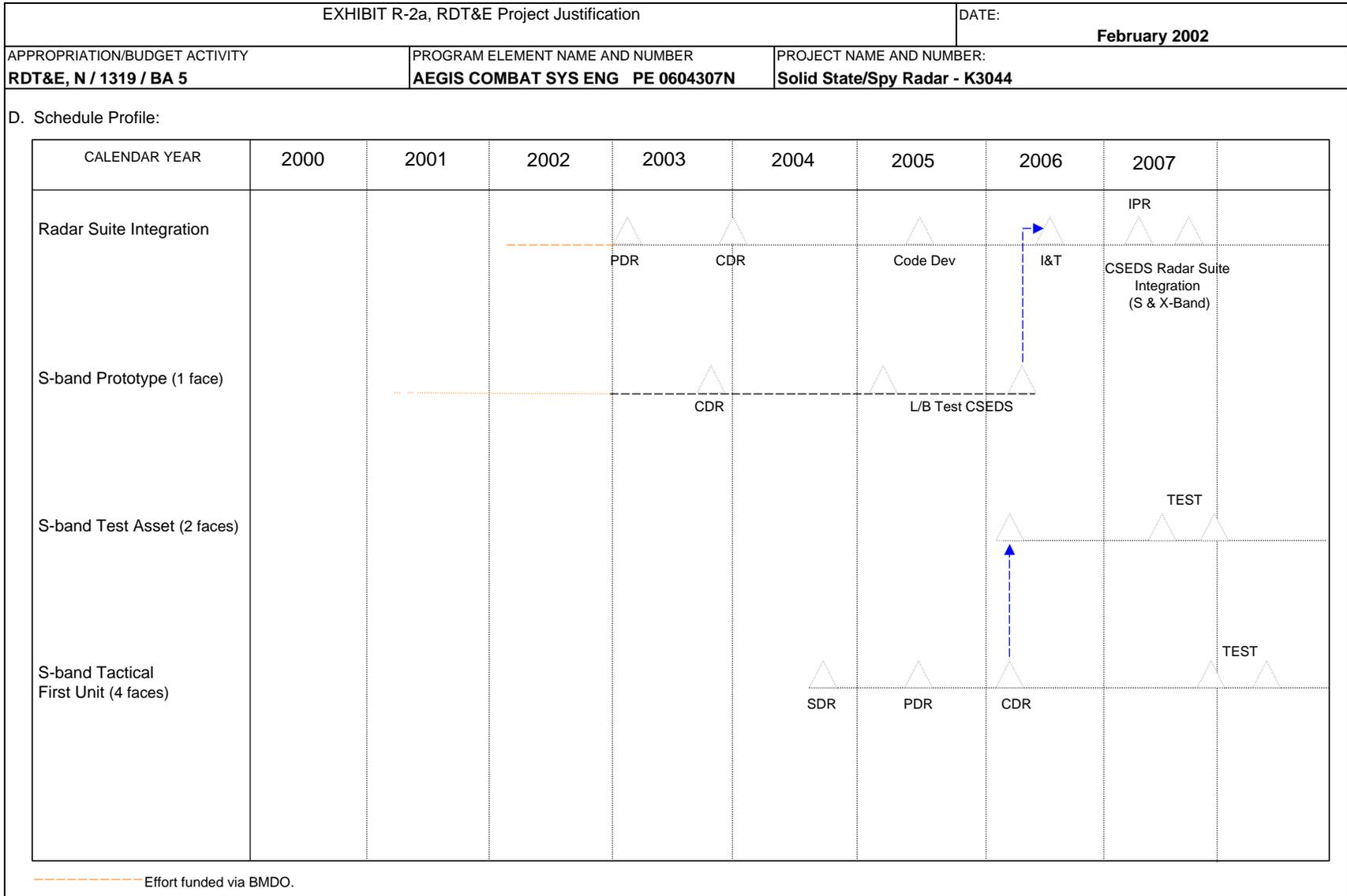
EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / 1319 / BA 5	PROGRAM ELEMENT NAME AND NUMBER AEGIS COMBAT SYS ENG PE 0604307N	PROJECT NAME AND NUMBER: Solid State SPY Radar - K3044
<p>A. (U) Mission Description and Budget Item Justification:</p> <p>The Theater Air and Missile Defense Radar Suite is being developed to provide a capability to destroy medium-to long-range ballistic missiles in the exoatmosphere. This S-Band/X-Band radar suite will provide a robust capability for the Theater Ballistic Missile Defense (TBMD) mission, while simultaneously supporting other required shipboard mission areas, including Ship Self Defense, Area Ballistic Missile Defense, Area Air Defense, Anti-Surface Warfare, Anti-Submarine Warfare, Counter-Fire, and Naval Surface Fire Support. For the TBMD capability, increased radar sensitivity is needed to detect, control and engage advanced theater ballistic missile threats at required ranges. This effort provides for the development of an S-Band solid state replacement for the SPY-1 Radar to provide the increased sensitivity model.</p> <p>FY 2001 ACCOMPLISHMENTS:</p> <p>N/A</p> <p>FY 2002 PLAN:</p> <p>N/A</p> <p>FY 2003 PLAN:</p> <ul style="list-style-type: none">- (U) (\$4.0) <u>S-band Radar Development</u><ul style="list-style-type: none">- Initiate radar preliminary design- Develop system and subsystem specifications- Identify and initiate risk reduction experiments and demonstrations of enabling technologies, including high-power amplifiers (including advanced materials), T/R modules, and Thermal management and cooling technologies, line array, environmental demonstration array.- (U) (\$0.971) <u>Field Activity Support for S-band Radar Development</u><ul style="list-style-type: none">- Participate in the development of threat definitions, performance requirements and radar specifications; perform radar systems performance analysis.- Participate in Integrated Product Teams (IPTs) and Working Groups (WGs) to resolve critical technical issues. Perform supporting studies and analyses as required.		

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2002				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NAME AND NUMBER			PROJECT NAME AND NUMBER:						
RDT&E, N / 1319 / BA 5			AEGIS COMBAT SYS ENG PE 0604307N			Solid State SPY Radar - K3044						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	SS/CPAF	Lockheed, Moorestown, NJ	N/A	N/A	N/A	N/A	N/A	4.000	TBD	CONT.	CONT.	
Systems Engineering	WR/RCP	Field Activities	N/A	N/A	N/A	N/A	N/A	0.971	TBD	CONT.	CONT.	
Subtotal Product Development			N/A	N/A	N/A	N/A	N/A	4.971	TBD	CONT.	CONT.	
Remarks:												
Support												
Subtotal Support												
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test and Evaluation												
Subtotal T&E												
Remarks:												
Program Management Support												
Subtotal Management												
Remarks:												
Total Cost			N/A	N/A	N/A	N/A	N/A	4.971	TBD	CONT.	CONT.	

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