CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5**					R-1 ITEM NOMENCLATURE 0604755N SHIP SELF DEFENSE (DETECT & CONTROL)			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**62.141**	**60.598**	**40.930**	**25.633**	**8.010**	**18.475**	**11.781**	**0.000**
20166/SPS Improvement	**6.590**	**3.886**	**1.944**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
K2178/QRCC	**44.243**	**47.597**	**36.572**	**25.633**	**8.010**	**18.475**	**11.781**	**0.000**
29081 Phalanx CIWS SEARAM*	**5.377***	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
K2190 NULKA*	**1.347***	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
K2309/AIEWS*	**2.018***	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
22649/IRST	**2.566**	**9.115**	**2.414**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

***FY02 Congressional Adds: RAM (+$5.377) should be in PE 64756, NULKA (+$1.347) and AIEWS (+$2.018) should be in PE 64757.**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program element consolidates currently ongoing and planned programmatic efforts related to Detect & Control aspects of Ship Self Defense (SSD) to facilitate effective planning and management of these efforts and to exploit the synergistic relationship inherent in each. Analysis and demonstration have established that surface SSD based on single-sensor detection point-to-point control architecture performs marginally against current and projected Anti-Ship Cruise Missile (ASCM) threats. The supersonic seaskimming ASCM reduces the effective battle space to the horizon and the available reaction time-line to less than 30 seconds from first opportunity to detect until the ASCM impacts its target ship. Against such a threat, multi-sensor integration is required for effective detection, and parallel processing is essential to reduce reaction time to acceptable levels and to provide vital coordination/integration of hardkill and softkill assets.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5**	R-1 ITEM NOMENCLATURE 0604755N SHIP SELF DEFENSE (DETECT & CONTROL)

These SSD projects address and coordinate the detect and control functions necessary to meet the rigorous SSD requirements within a development structure dedicated to systems engineering.

DETECTION: Improved coordinated sensor performance to increase the probability of detecting low altitude, low observable targets is to be achieved through the synergism gained from the integration of dissimilar sensor sources. Multi-sensor integration is being addressed through the efforts of Quick Reaction Combat Capability (QRCC) (K2178), while sensor improvements are addressed through the SPS Improvements (20166) and Infrared Search and Track (22649). These provide improvements to both active and passive detection.

CONTROL: Multi-sensor integration, parallel processing and the coordination of hardkill/softkill capabilities in an automated response to the ASCM threat are the cornerstones of Ship Self Defense System (SSDS) being developed through QRCC (K2178) efforts. In addition, that project provides for the central system engineering management of SSD developments, including efforts required to integrate SSDS with the Advanced Combat Direction System (CDS) for those ships having a CDS.

R-1 SHOPPING LIST - Item No. 131

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2003**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA-5**	PROGRAM ELEMENT NUMBER AND NAME 0604755N SHIP SELF DEFENSE (DETECT & CONTROL)				PROJECT NUMBER AND NAME 20166 SPS Improvement Program			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**6.590**	**3.886**	**1.944**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project provides funding for the SPS Improvement Program (SPQ-9B). This program develops and tests performance and reliability upgrades for search radar equipment to meet the evolving threat. The AN/SPQ-9 radar supports surface engagement capability to effectively detects and tracks sea-skimming, low radar cross-section, high-speed targets in heavy clutter environments. The radar interfaces with ship combat systems via either the MK-86 GFCS, Ship Self Defense System (SSDS), or Cooperative Engagement Capability (CEC) on CG47, CV/CVN, LHD, LPD 17 and DDG 51 class ships. The AN/SPQ-9B uses a high resolution, track-while-scan, X-Band, pulse Doppler radar to provide real time acquisition and automatic tracking of multiple targets. A lightweight antenna assembly has also been furnished as an engineering change.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA5	0604755N SHIP SELF DEFENSE (DETECT & CONTRO	20166 SPS Improvement Program

B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.000	1.426	1.944	0.000
RDT&E Articles Quantity				

AN/SPQ-9B Integration into AEGIS Baseline 7 Phase 1/MK 160 Gun Computer System.
.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	4.590	2.460	0.000	0.000
RDT&E Articles Quantity				

AN/SPQ-9B Developmental Testing on Lightweight Antenna configuration changes/Operational Test and Evaluation.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000
RDT&E Articles Quantity				

R-1 SHOPPING LIST - Item No. 131

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604755N SHIP SELF DEFENSE (DETECT & CONTROL)	20166 SPS Improvement Program

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 03 Pres Controls):	4.855	3.973	1.988	0
President's Budget (FY 04/05 Pres Controls):	6.59	3.886	1.944	0
Total Adjustments	1.735	-0.087	-0.044	0
Summary of Adjustments				
SBIR/STTR Transfer	-0.129			
Programmatic Adjustments	1.905			
Inflation		-0.042	-0.044	
Congressional Reductions	-0.028	-0.045		
Minor Pricing Adjustments	-0.013			
Subtotal	1.735	-0.087	-0.044	0

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA5	0604755N SHIP SELF DEFENSE (DETECT & CONTROL	20166 SPS Improvement Program	

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
OPN LINE 511000 (AN/SPQ-9B)	22.069	22.399								
OPN LINE 202600 (AN/SPQ-9B)			9.739	9.068	7.642	11.523	27.305	27.99	CONT.	CONT.

E. ACQUISITION STRATEGY:

AN/SPQ-9B Radar is a directed sole source contract to Northrop Grumman Norden Systems for LRIP, and upon successful completion of TECHEVAL/OPEVAL, entering into Full Rate Production. Beginning in FY2002, Lockheed Martin to develop AN/SPQ 9B integration into AEGIS Baseline 7 Phase 1/MK 160 Gun Computer System.

F. MAJOR PERFORMERS:

NORTHROP GRUMMAN CORP. 03/02
NORDEN SYSTEMS
MELVILLE, N.Y. 11747
PRIME CONTRACTOR

LOCKHEED MARTIN CORP 05/02
NE&SS-SURFACE SYSTEMS
MOORESTOWN, N.J.
SPQ-9B/AEGIS INTEGRATION

R-1 SHOPPING LIST - Item No. 131

CLASSIFICATION:

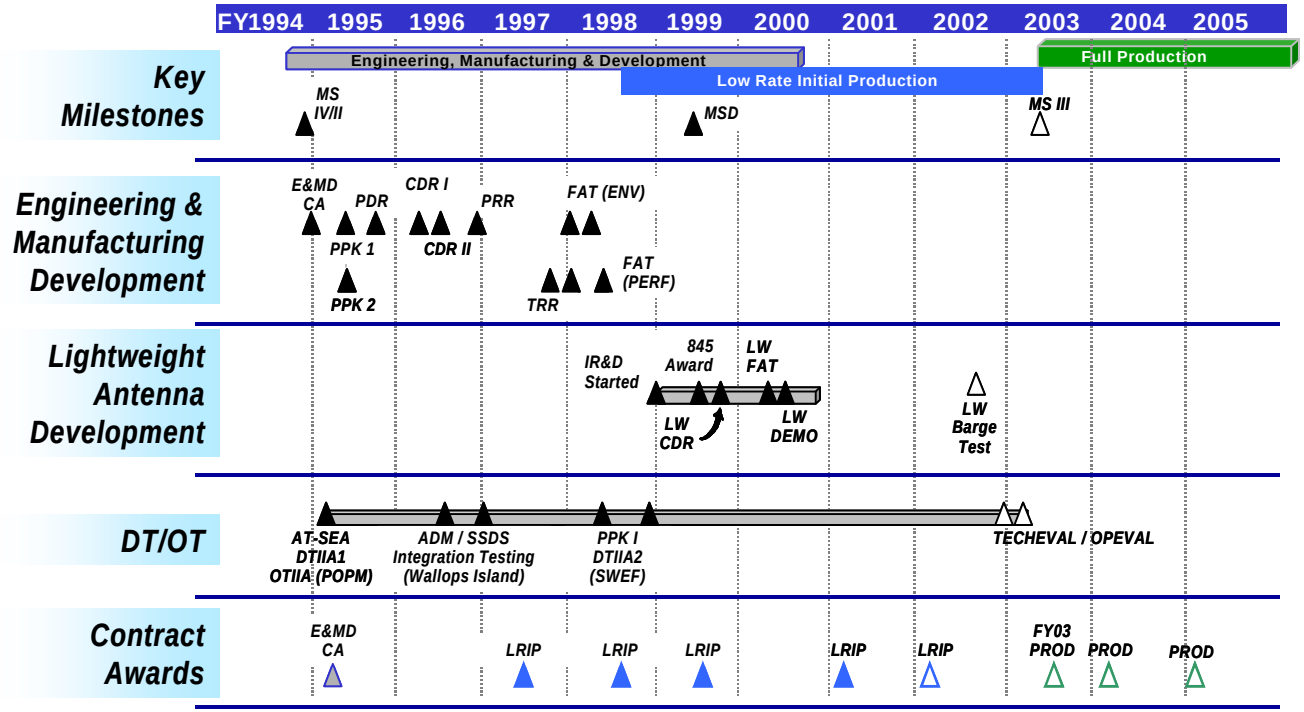
Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2003**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**		PROGRAM ELEMENT 0604755N SHIP SELF DEFENSE (DETECT & CONTROL			PROJECT NUMBER AND NAME 20166 SPS Improvement Program							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPAF/DA	NGNS, Melville NY	40.308	1.426	03/02	0.000	N/A				41.734	41.734
Ancillary Hardware Development	FFP	*ITT/G Van Nuys, CA	7.000	0.000	N/A	0.000	N/A				7.000	7.000
Aircraft Integration			0.000	0.000		0.000	N/A				0.000	0.000
Ship Integration	CPAF	LM, Moorestown, NJ	2.000	2.460	10/02	1.944	10/03				6.404	6.404
Ship Suitability											0.000	
Systems Engineering											0.000	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			49.308	3.886		1.944		0.000		0.000	55.138	N/A
Remarks: *Development cost of AN/SPS-48 Transmitter.												
Development Support Equipment											0.000	
Software Development	WR	PHD, NSWC,CA	5.985	0.000	N/A	0.000	N/A			0.000	5.985	5.985
Training Development		Various	2.112	0.000	N/A	0.000	N/A			0.000	2.112	2.112
Integrated Logistics Support	WR	Various	2.112	0.000	N/A	0.000	N/A			0.000	2.112	2.112
Configuration Management	PD/WR	Various	6.580	0.000	N/A	0.000	N/A			0.000	6.580	6.580
Technical Data	WR	Various	3.170	0.000	N/A	0.000	N/A			0.000	3.170	3.170
Design Development	WR	NRL, WASH,DC	0.000	0.000	N/A	0.000	N/A			0.000	0.000	0.000
											0.000	0.000
Subtotal Support			19.959	0.000		0.000		0.000		0.000	19.959	19.959
Remarks: Various Activities includes PHD, NSWC, NRL, NSWC/CD, and APL												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2003**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**			PROGRAM ELEMENT 0604755N SHIP SELF DEFENSE (DETECT & CONTROL			PROJECT NUMBER AND NAME 20166 SPS Improvement Program						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
DT&E	WR/RC	PHD NSWC, CA	1.665	0.000	N/A	0.000	N/A			0.000	1.665	1.665
DT&E	WR	NRL, Washington DC	1.933	0.000	N/A	0.000	N/A			0.000	1.933	1.933
DT&E	WR	PT. MAGU, CA	0.300	0.000	N/A	0.000	N/A			0.000	0.300	0.300
OT&E	WR/RC	PHD NSWC, CA	0.560	0.000	N/A	0.000	N/A			0.000	0.560	0.560
OT&E	WR	NRL, Washington DC	0.410	0.000	N/A	0.000	N/A			0.000	0.410	0.410
OT&E	WR	OPTEVFOR, NORFOLK	0.792	0.000	N/A	0.000	N/A			0.000	0.792	0.792
OT&E	IPR	NASA, MOFFET FIELD	0.104	0.000	N/A	0.000	N/A			0.000	0.104	0.104
Subtotal T&E			5.764	0.000		0.000		0.000		0.000	5.764	
Remarks:												
Cost Categories											0.000	
MANAGEMENT											0.000	
Miscellaneous	Various	Various	2.559		N/A	0.000	N/A	0.000		0.000	2.559	2.559
SBIR			0.129								0.129	0.129
											0.000	
											0.000	
Subtotal Management			2.688	0.000		0.000		0.000		0.000	2.688	
Remarks:												
Total Cost			77.719	3.886		1.944		0.000		0.000	83.549	
Remarks:												

R-1 SHOPPING LIST - Item No. 131

EXHIBIT R-2a, RDT&E Project Justification			DATE: February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER	
RDT&E, N/BA5	0604755N SHIP SELF DEFENSE (DETECT & CONTROL)	20166 SPS Improvement Program	



CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2003**			
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-5**	PROGRAM ELEMENT 0604755N SHIP SELF DEFENSE (DETECT & CONTROL)				PROJECT NUMBER AND NAME 20166 SPS Improvement Program			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Developmental Testing	4Q							
Operational Testing		1Q						
Technical Evaluation (TECHEVAL)	4Q							
Operational Evaluation (OPEVAL)		1Q						
Full Rate Production (FRP) Decision		2Q						
Full Rate Production Start		3Q						

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2003**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT NUMBER AND NAME 0604755N SHIP SELF DEFENSE (DETECT & CONTROL)				PROJECT NUMBER AND NAME K2178/Quick Reaction Combat Capability			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**44.243**	**47.597**	**36.572**	**25.633**	**8.010**	**18.475**	**11.781**	**0.000**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Quick Reaction Combat Capability (QRCC) project implements an evolutionary acquisition of improved ship self defense capabilities against Anti-Ship Cruise Missiles (ASCMs) for selected ships. The Ship Self Defense System (SSDS) is the integrating element of QRCC. The design integrates several existing stand-alone Anti-Air Warfare (AAW) systems that do not individually provide the complete detection, control, and engagement capabilities needed against low flying, high speed ASCMs with low radar cross sections. The SSDS integration concept fulfills the need for an automated detection, quick reaction and multi-target engagement capability emphasizing performance in the littoral environment. SSDS replaces manual control of several self-defense systems with a single integrated capability under the computer-aided control of ship operators. System design emphasizes use of non-developmental items, commercial standards, Next Generation Computer Resources, computer program reuse and open architecture. SSDS is a physically distributed, open architecture computer network consisting of commercially available or previously developed hardware. It includes a command table that uses components of the Navy's AN/UYQ-70 standard display for human-machine interface, commercially available local area network access units and circuit cards, and commercially available fiberoptic cabling.

SSDS MK1 integrates the SPS-49A(V)1 radar, SPS-67(V)1 radar, AN/SLQ-32A electronic countermeasures system, Combat Identification, Friend or Foe-Self Defense (CIFF-SD), Rolling Airframe Missile and Phalanx Close-In Weapon System and is installed on LSD41/49 class ships. SSDS MK1 successfully completed Operational Evaluation in June 1997. SSDS received Milestone III Approval for Full Rate Production (Mar 98) and authority to integrate with ACDS and Cooperative Engagement Capability (CEC) on CV(N), LPD-17, LHD and LHA ship classes.

SSDS MK2 facilitates the incremental evolution and implementation of follow-on modifications. Development of SSDS MK2 consists of leveraging critical experiments and re-use of technology and software from SSDS MK1. SSDS MK2 is in development and will integrate other ship self defense elements, such as the AN/SPQ-9B radar, and NATO Sea-sparrow missile system with the CEC to improve joint interoperability. SSDS MK2 provides enhanced capabilities for Force Protection against air, and surface threats using both ownship and remote data in support of the AAW Capstone Requirements. SSDS MK2 becomes the integrated, coherent real time Command and Control System for Aircraft Carriers and Amphibious ships. It will: increase operational capabilities; improve combat readiness and Battle Group Interoperability; and promote standardization. It will also introduce new shipboard tactical displays and support equipment, as well as, implement interfaces common with those used by AEGIS to facilitate commonality and lower life cycle costs.

Single Integrated Air Picture (SIAP) provides a common correation/decorrelation scheme among all services giving the warfare commanders a
Single Integrated Air Picture that will eliminate cluttered tactical picture and improve operator workload and optimize the allocation of weapons and threats.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604755N SHIP SELF DEFENSE (DETECT & CONTRO	K2178/Quick Reaction Combat Capability

B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	26.458	26.511	21.802	19.504
RDT&E Articles Quantity				

Develop and deliver the computer program products for each of the SSDS MK 2 ship class variants (Mod 1 for Carriers and Mod 2 for LPDs). Conduct reviews of computer program systems engineering products to assess the computer program development and integration progress. Code each new or modified unit as specified in the detailed design, revise and compile the code until it compiles without errors. Conduct a unit test for all new and modified software units, identify and document test cases describing their purpose, the functions being tested, the test environment, and the test results. Evaluate the test results and correct the code and retest, if necessary. Conduct a Formal Qualifications Test (FQT) before delivery to test certification facilities and continue to support testing efforts through computer program corrections and retest.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	5.486	2.087	0.000
RDT&E Articles Quantity				

Complete systems requirements and identify necessary functionality changes for the LHD class ship. Complete software engineering documentation and reviews, begin computer program coding, and begin preparations for test requirements and events.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	11.000	15.600	11.140	4.560
RDT&E Articles Quantity				

Complete the SSDS MK 2 MOD 0 required development and operational test events at SCSC Wallops Island and onboard the CVN 68, USS NIMITZ, as well as data analysis and identifying required computer program corrections.
Conduct comprehensive combat system tests on SSDS MK 2 MOD 1 (CVN 76) at Wallops Island, including development tests, data extraction, data analysis and identifying computer program corrections.
Complete all test preparations and documentation for LPD 17 configuration testing efforts planned in FY05, and participate and assist in the Follow-On Test Evaluation (FOT&E) conducted on the CVN 76 in FY05.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604755N SHIP SELF DEFENSE (DETECT & CONTRO	K2178/Quick Reaction Combat Capability

B. Accomplishments/Planned Program (Cont.)

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	5.700	0.000	0.000	0.000
RDT&E Articles Quantity				

Applied remaining Labor Rate Adjustment on the development, integration and delivery of Raytheon contract.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.085	0.000	0.000	0.000
RDT&E Articles Quantity				

Provided the USS NIMITZ with combat system battlegroup support to test events and missile exercises.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	1.543	1.569
RDT&E Articles Quantity				

Conduct Studies & Analysis to Provide Single Integrated Air Picture (SIAP) funds to eliminate cluttered tactical picture and improve operator workload and optimize the allocation of weapons and threats of the MK2 System.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604755N SHIP SELF DEFENSE (DETECT & CONTROL)	K2178/Quick Reaction Combat Capability

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 03 Pres Controls)	44.538	48.673	36.386	24.813
President's Budget: (FY04/05 Pres Controls)	44.243	47.597	36.572	25.633
Total Adjustments	-0.295	-1.076	0.186	0.820
Summary of Adjustments				
Program Adjustments	1.505			
SBIR/STTR Transfer	-1.031			
Minor Pricing Adjustments	-0.158		-0.567	-0.227
Inflation		-0.516	-0.847	-0.553
Congressional Reductions	-0.611	-0.560		
C-3 SIAP			1.600	1.600
Subtotal	-0.295	-1.076	0.186	0.820

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2003
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604755N SHIP SELF DEFENSE (DETECT & CONTROL	K2178/Quick Reaction Combat Capability

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Ship Self Defense System OPN / 523900 , 523905 , 523906	38.583	46.234	58.089	42.693	35.902	30.152	30.813	31.337	181.2	631.8
SCN CV(N) / CVN 70	0	50.275	0	0	0	0	0	0	0	50.275
SCN LPD ship class		20.205	20.205		40.41	20.205	40.41	0	CONT.	141.435

Related RDT&E: PE 0603658N (Cooperative Engagement Capability CEC)

E. ACQUISITION STRATEGY:

LSD class procurements and installations are complete. These systems were procured under a Firm Fix Price (FFP) Contract. The FY00 requirements also include CVN 68 and 1 shore based trainer. The first SSDS MK 2 system procurements took place under a Cost Plus Award Fee contract in FY99 for the CVN 76, LPD 17, LPD 18 and CVN 69. Follow-on procurements for additional ships of the CV(N), LPD and LHD classes will be made using FFP contracts.

F. MAJOR PERFORMERS:

Raytheon Systems Company, San Diego, CA. Award date Dec. 98
Provides the systems engineering that assists in establishing the requirements for the computer program development and hardware design, conduct system development, testing, production, packaging, shipping, delivery and configuration management for the Ship Self Defense System (SSDS) MK 2 equipment for the CVN and LPD Ship Classes.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2003**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**		PROGRAM ELEMENT 0604755N SHIP SELF DEFENSE (DETECT & CONTROL)				PROJECT NUMBER AND NAME K2178/Quick Reaction Combat Capability						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAVSEA/DD-Dahlgren, VA	19.983	1.825	10/02	2.283	10/03	2.024	10/04	0.000	26.115	N/A
Systems Engineering	SS/FP	JHU/APL-Laurel, MD	30.045	2.033	11/02	2.886	11/03	1.779	11/04	0.000	36.743	N/A
Systems Engineering	WR	NAVSEA/PHD-Pt Hueneme,CA	9.273	1.189	10/02	0.430	10/03	0.200	10/04	0.000	11.092	N/A
Systems Engineering	WR	NAVSEA/PHD-Dam Neck, VA	1.940	1.153	10/02	1.407	10/03	0.654	10/04	0.000	5.154	N/A
Systems Engineering	SS/CPAF	RSC(5108)-San Diego, CA	72.788	27.525	10/02	17.055	10/03	0.000	N/A	0.000	117.368	117.368
Systems Engineering	SS/CPAF	RSC(5466)- San Diego, CA	20.353	0.000	N/A	0.000	N/A	0.000	N/A	0.000	20.353	20.353
	SS/CPFF	RSC(5104)-San Diego, CA	0.800	0.000	N/A	0.000	N/A	15.016	10/04	0.000	15.816	15.816
Award Fees	SS/CPAF	RSC(5108)-San Diego, CA	7.525	4.452	10/02	3.032	10/03	0.000	N/A	0.000	15.009	15.009
Award Fees	SS/CPAF	RSC(5466)- San Diego, CA	2.163	0.000	N/A	0.000	N/A	0.000	N/A	0.000	2.163	2.163
Risk Reduction / EMD	Various	Various	76.366	0.000	N/A	0.000	N/A	0.000	N/A	0.000	76.366	76.366
Misc.	Various	Various	0.175	0.075	N/A	0.000	N/A	0.000	N/A	0.000	0.250	N/A
Subtotal Product Development			241.411	38.252		27.093		19.673		0.000	326.429	N/A
Remarks:												
QA/RMA	WR	NWAS Corona	8.640	0.000	N/A	0.000	N/A	0.000	N/A	0.000	8.640	
Subtotal Support			8.640	0.000	N/A	0.000	N/A	0.000	N/A	0.000	8.640	
Remarks:												

R-1 SHOPPING LIST - Item No. 131

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2003**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**		PROGRAM ELEMENT 0604755N SHIP SELF DEFENSE (DETECT & CONTROL)			PROJECT NUMBER AND NAME K2178/Quick Reaction Combat Capability							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAVSEA/PHD-Pt Hueneme,CA	23.993	4.913	10/02	2.350	10/03	2.500	10/04	0.000	33.756	N/A
Developmental Test & Evaluation	WR	NAVSEA/Dam Neck, VA	1.105	0.000	10/02	0.000	10/03	0.000	10/04	0.000	1.105	N/A
Developmental Test & Evaluation	WR	NAVSEA DD, Wallops Island	14.836	1.651	10/02	4.293	10/03	1.500	10/04	0.000	22.280	N/A
Developmental Test & Evaluation	SS/FP	JHU/APL- Laurel, MD	3.410	1.140	N/A	0.500	N/A	0.000	N/A	0.000	5.050	N/A
Developmental Test & Evaluation	WR	NAVSEA/CORONA, Corona CA	0.998	0.000	10/02	0.800	10/03	0.500	10/04	0.000	2.298	N/A
Developmental Test & Evaluation	WR	OPTEVFOR	0.863	0.185	10/02	0.250	10/03	0.250	10/04	0.000	1.548	N/A
Misc.	Various	Various	3.314	0.610	N/A	0.525	N/A	0.525	N/A	0.000	4.974	N/A
Subtotal T&E			48.519	8.499		8.718		5.275		0.000	71.011	N/A
Remarks:												
Program Management Support			7.661	0.846	N/A	0.761	N/A	0.685	N/A	0.000	9.953	N/A
											0.000	N/A
Subtotal Management			7.661	0.846		0.761		0.685		0.000	9.953	N/A
Remarks:												
Total Cost			306.231	47.597	N/A	36.572	N/A	25.633	N/A	0.000	416.033	N/A
Remarks:												

R-1 SHOPPING LIST - Item No. 131

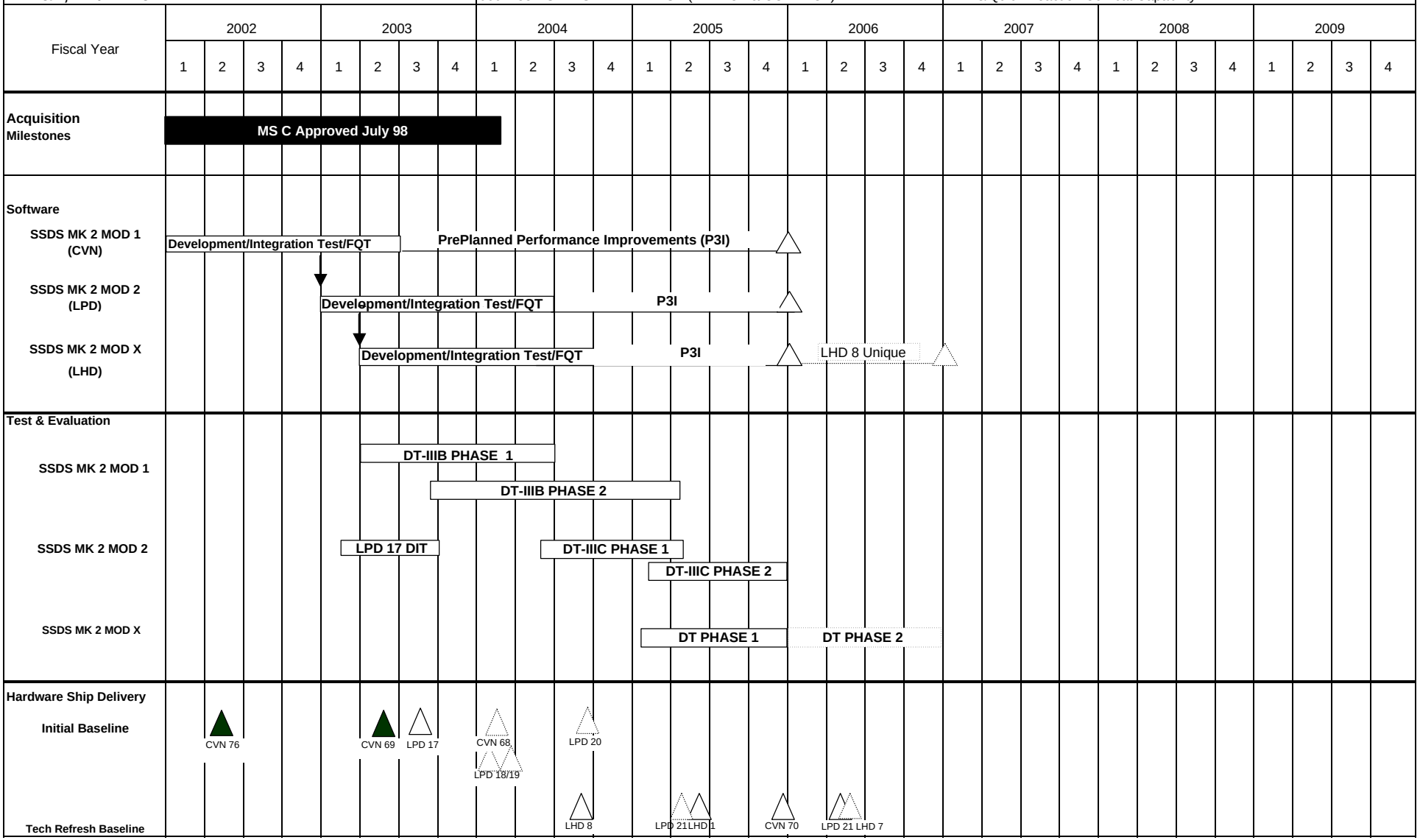
CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2003**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-5**

PROGRAM ELEMENT NUMBER AND NAME: 0604755N SHIP SELF DEFENSE (DETECT & CONTROL)

PROJECT NUMBER AND NAME: K2178/Quick Reaction Combat Capability



R-1 SHOPPING LIST - Item No. 131

* Efforts described with dotted lines in FY 06 support the SCN LHD-8 schedule

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2003**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N BA-5**	PROGRAM ELEMENT 0604755N SHIP SELF DEFENSE (DETECT & CONTROL)				PROJECT NUMBER AND NAME K2178/Quick Reaction Combat Capability			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
SSDS MK 2 MOD 0 (CVN 68)								
CSIT TESTING	2Q-4Q							
DEVELOPMENTAL TESTING AT WALLOPS	1Q-4Q	1Q						
TEST READINESS REVIEW (TRR)	2Q							
CSSQT	4Q							
ONBOARD TEST EVENTS		1Q						
SSDS MK 2 MOD 1 (CV/CVNs)								
SYSTEM DEVELOPMENT	1Q-3Q							
INTEGRATION TESTING	3Q-4Q	1Q						
FORMAL QUALIFICATION TEST (FQT)		1Q-2Q						
INTEGRATION/DEVELOPMENTAL TESTS / Phase I	2Q-4Q	1Q-4Q	1Q-4Q					
TEST READINESS REVIEW (TRR)		1Q	4Q					
CSIT TESTING		2Q-4Q	1Q-2Q					
ONBOARD TEST EVENTS / Phase II	3Q	1Q-4Q	1Q-4Q					
CSSQT			4Q					
SSDS MK 2 MOD 2 (LPDs)								
SYSTEM DEVELOPMENT	1Q-4Q	1Q-3Q						
INTEGRATION TESTING		3Q-4Q	1Q-2Q					
FORMAL QUALIFICATION TEST (FQT)			2Q-3Q					
LPD-17 (SCN) DIT	4Q	1Q						
INTEGRATION/DEVELOPMENTAL TESTS / Phase I		1Q-4Q	1Q-4Q					
TEST READINESS REVIEW (TRR)			1Q	2Q				
CSIT TESTING			2Q-4Q	1Q				
ONBOARD TEST EVENTS / Phase II			1Q-4Q	1Q-3Q				
CSSQT				3Q				
SSDS MK 2 MOD X (LHDs)								
SYS ENGINEERING/SYSTEM DEVELOPMENT	1Q-4Q	1Q-4Q	1Q-3Q					
INTEGRATION TESTING			3Q-4Q	1Q-2Q				
FORMAL QUALIFICATION TEST (FQT)				2Q-3Q				
INTEGRATION/DEVELOPMENTAL TESTS / Phase I				1Q-4Q				
TEST READINESS REVIEW (TRR)				2Q				
CSIT TESTING				3Q-4Q	1Q-3Q			
ONBOARD TEST EVENTS /Phase II (LHD 8 Unique)					1Q-4Q			
CSSQT						1Q		

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R-4

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																																DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-05**									PROGRAM ELEMENT NUMBER AND NAME 0604755N SHIP SELF DEFENSE-EMD														PROJECT NUMBER AND NAME K2190 / SEA RAM SYSTEM ORDALT UPGRADE											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones				▲	Contract Modification																											
System Engineering*				■	■																											

R-1 SHOPPING LIST - Item No. 131

* FY02 Congressional Plus-up released 4th quarter FY02. Funds initiation of development activity through the end of 1st quarter FY03.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2003**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT NUMBER AND NAME 0604755N SHIP SELF DEFENSE (DETECT & CONTROL)				PROJECT NUMBER AND NAME 22649 Infrared Search and Track (IRST)			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**2.566**	**9.115**	**2.414**					
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project provides funding for the Infrared Search & Track (IRST) System. The threat from Sea Skimming Anti-Ship Cruise Missiles (ASCMs) is increasing at a substantial rate and is impacting the Navy's force protection and battle space dominance capability. The IRST program bolsters ships force protection capabilities by providing fully integrated passive detection/declaration of Sea Skimming ASCM threats. In addition, IRST provides Situational Awareness (SA), detection and tracking of surface and low-flying targets which pose threats to ships at-anchor, pier-side or transiting narrow waterways. These features support platform Anti-terrorism and Force Protection (AT/FP) requirements. Because IRST operates in the infrared portion of the electromagnetic spectrum, it is immune to radar countermeasures and is not affected by atmospheric anomalies such as surface based ducting. In addition, IRST provides extremely accurate and precise elevation data at the horizon that allows immediate determination of hostile intent. IRST can also free up search radar resources by providing horizon search coverage where radar performance is marginal. The IRST provides passive augmentation to complement radar, electronic support measures and visual surveillance systems for air targets for the ships' combat system.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604755N SHIP SELF DEFENSE (DETECT & CONTRO	22649 Infrared Search and Track (IRST)

B. Accomplishments/Planned Program (Cont.)

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.541	5.153	0.850	

Continue Hardware Fabrication,Integration and Test

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.302	0.335	0.150	

Continue Systems Engineering; and begin Systems Integration and Test

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.774	1.770		

Continue Software Modifications

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604755N SHIP SELF DEFENSE (DETECT & CONTRO	22649 Infrared Search and Track (IRST)

B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.050	0.055	0.050	

Continue Integrated Logistics,Reliability and Maintainability Support

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.600	1.300	0.369	

Continue Independent Systems Engineering

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.087	0.087	0.050	

Continue Contract Engineering Services

R-1 SHOPPING LIST - Item No. 131

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604755N SHIP SELF DEFENSE (DETECT & CONTRO	22649 Infrared Search and Track (IRST)

B. Accomplishments/Planned Program (Cont.)

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.212	0.415	0.245	

Continue Program Management/Technical Support

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.700	

Continue Developmental Test & Evaluation and Conduct Operational Assessment

R-1 SHOPPING LIST - Item No. 131

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604755N SHIP SELF DEFENSE (DETECT & CONTROL)	22649 Infrared Search and Track (IRST)

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 03 Pres Controls)	2.676	9.320	2.469	
Current President's Budget: (FY04/05 Pres Controls)	2.566	9.115	2.414	
Total Adjustments	-0.110	-0.205	-0.055	0.000
Summary of Adjustments				
SBIR/STTR Transfer	-0.044			
Inflation		-0.099	-0.055	
Congressional Reductions	-0.014	-0.106		
Minor Pricing Adjustments	-0.052			
Subtotal	-0.110	-0.205	-0.055	0.000

Schedule: Not Applicable

Technical: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604755N SHIP SELF DEFENSE (DETECT & CONTROL	22649 Infrared Search and Track (IRST)

D. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

E. ACQUISITION STRATEGY: Not Applicable

F. MAJOR PERFORMERS:

	FY-02	FY-03	FY-04	
Lockheed Martin Integrated Systems,Inc, Orlando Florida				
Primary Hardware Development,Systems Engineering, Systems Integration and Test	11/01	11/02	11/03	
NSWC Dahlgren		10/01	10/02	10/03

R-1 SHOPPING LIST - Item No. 131

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2003**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**		PROGRAM ELEMENT 0604755N SHIP SELF DEFENSE (DETECT & CONTROL				PROJECT NUMBER AND NAME 22649 Infrared Search and Track (IRST)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPAF	LOCKHEED MARTIN	49.386	4.586	11/02	0.757	11/03				54.729	54.729
Systems Engineering	C/CPAF	LOCKHEED MARTIN		0.335	11/02	0.150	11/03				0.485	0.485
Component Development											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Integration &Test	C/CPAF	LOCKHEED MARTIN									0.000	
Contract Engineering Services	C/CPAF	LOCKHEED MARTIN		0.087	11/02	0.050	11/03				0.137	0.137
SPCU	C/CPAF	LOCKHEED MARTIN									0.000	
Tooling											0.000	
GFE											0.000	
Award Fees	C/CPAF	LOCKHEED MARTIN		0.567	11/02	0.093	11/03				0.660	0.660
Subtotal Product Development			49.386	5.575		1.050		0.000		0.000	56.011	
Remarks:												
Development Support											0.000	
Software Development&Mods	Various	Various	4.349	1.770							6.119	6.119
Training Development											0.000	
Integrated Logistics Support			0.889	0.055		0.050					0.994	0.994
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			5.238	1.825		0.050		0.000		0.000	7.113	
Remarks:												

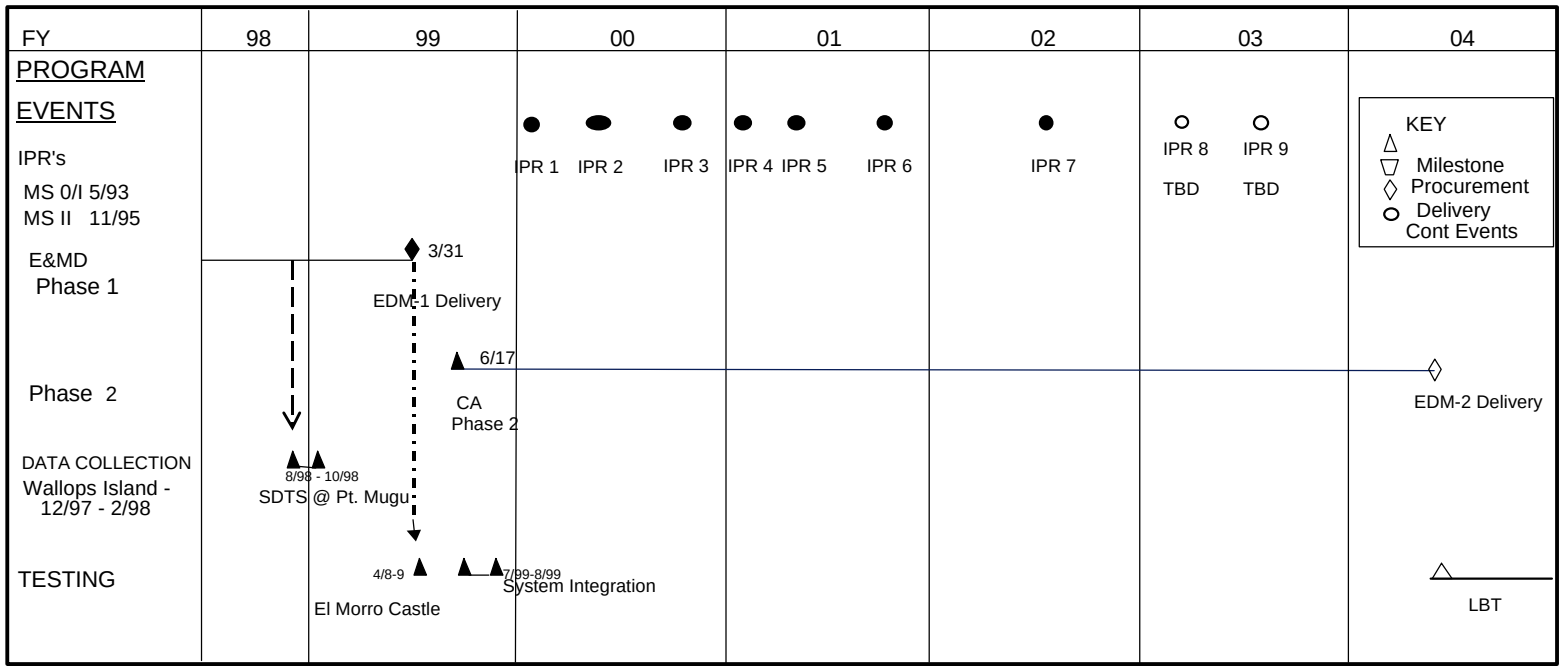
CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2003**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**		PROGRAM ELEMENT 0604755N SHIP SELF DEFENSE (DETECT & CONTROL			PROJECT NUMBER AND NAME 22649 Infrared Search and Track (IRST)							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Dev T&E Operational Assessment	WX	NSWC/OPTEVFOR	2.300			0.700					3.000	
Operational Test & Evaluation	WX	NSWC/Integration Test	0.875								0.875	
Independent Systems Engineering	WX	NSWC/Dahlgren	2.337	1.300		0.369					4.006	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			5.512	1.300		1.069		0.000		0.000	7.881	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	VARIOUS	VARIOUS	2.901	0.380		0.175					3.456	
Travel	PD		0.124	0.035		0.070					0.229	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			3.025	0.415		0.245		0.000		0.000	3.685	
Remarks:												
Total Cost			63.161	9.115		2.414		0.000		0.000	74.690	
Remarks:												

R-1 SHOPPING LIST - Item No. 131

CLASSIFICATION:

EXHIBIT R-4, Schedule Profile		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER
RDT&E, N/BA 5	0604755N SHIP SELF DEFENSE (DETECT & CONTROL)	22649 Infrared Search and Track (IRST)



R-1 Shopping List - Item No. 131

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2003**			
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-5**	PROGRAM ELEMENT 0604755N SHIP SELF DEFENSE (DETECT & CONTROL)				PROJECT NUMBER AND NAME 22649 Infrared Search and Track (IRST)			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
In-Process Review #7	3Q							
In Process Review #8		1-2Q						
In-Process Review #9		3-4Q						
EDM-2 Delivery			2-3Q					
Land Base Testing (LBT)			2-3Q					