CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0603658N Cooperative Engagement Capability			
COST ($ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Total PE Cost	**106.020**	**86.725**	**103.452**	**114.010**	**67.280**	**63.636**	**63.599**	
2039/Cooperative Engagement Capability (CEC)	**81.318**	**71.595**	**103.452**	**114.010**	**67.280**	**63.636**	**63.599**	
2616/Battlegroup Interoperability Issues	**24.702**	**15.130**						

Defense Emergency Response Funds (DERF) Funds: Not Applicable.

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Cooperative Engagement Capability (CEC) significantly improves Battle Force Anti-Air Warfare (AAW) capability by coordinating all Battle Force AAW sensors into a single, real-time, composite track picture capable of fire control quality. CEC distributes sensor data from each ship and aircraft, or cooperating unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate gridlocking between CUs. Each CU independently employs high capacity, parallel processing and advanced algorithms to combine all distributed sensor data into a fire control quality track picture which is the same for all CUs. CEC data is presented as a superset of the best AAW sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapons system. CEC will significantly improve our Battle Force defense in depth, including both local area and ship defense capabilities against current and future AAW threats. Moreover, CEC will provide critical connectivity and integration of over-land air defense systems capable of countering emerging air threats, including land attack cruise missiles, in a complex littoral environment.

CEC consists of the Data Distribution System (DDS), the Cooperative Engagement Processor (CEP), and Combat System modifications. The DDS encodes and distributes ownship sensor and engagement data and is a high capacity, jam resistant, directive system providing a precision gridlocking and high throughput of data. The CEP is a high capacity distributed processor that is able to process force levels of data in near real-time. This data is passed to the ship's combat system as high quality data for which the ship can cue its onboard sensors or use the data to engage targets without actually tracking them.

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603658N Cooperative Engagement Capability	2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues

B. Accomplishments/Planned Program

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	10.564	13.338	18.603	
RDT&E Articles Quantity				

Development, integration and testing of computer program Baseline 2.1 with AEGIS CGs and DDGs, ACDS and SSDS equipped ships during FOT&E-3/4.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	29.919	10.800	3.300	
RDT&E Articles Quantity				

E-2C HAWKEYE 2000 aircraft and CEC AN/USG-3 system integration and FOT&E-2 testing, and RMP Advanced HAWKEYE.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost		1.600		
RDT&E Articles Quantity				

Single Integrated Air Picture (SIAP) improvements.

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EXHIBIT R-2, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603658N Cooperative Engagement Capability	2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	1.536	1.162	1.200	
RDT&E Articles Quantity				

Systems Engineering/Integration Agent (SE/IA) for development and execution of systems engineering processes by NSWC, Dahlgren.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	10.000	32.000	67.000	
RDT&E Articles Quantity				

Execution of Systems Integration/Design Agent competition; initiation of P3I initiatives/Track Management functions and Platform Independent Model (PIM) and Platform Specific Models (PSM) including GIG Horizontal Fusion Inititatves.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	47.271	19.857	5,839	
RDT&E Articles Quantity				

CEC system improvements including enhanced communications, expansion of networking capacity, next generation/reduced size equipment, development of system protection/multi-level secure operations, and Planar Array Active Antenna (PAAA).

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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603658N Cooperative Engagement Capability	2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues

B. Accomplishments/Planned Program (Cont.)

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	2.000	2.000	2.000	
RDT&E Articles Quantity				

Participation in system interoperability exercises including the Joint Combat Identification Evaluation Team (JCIET) and Roving Sands, etc.

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	3.900	5.400	4.945	
RDT&E Articles Quantity				

Field activity support of CEC development efforts (i,e, In-Service Engineering; Integrated Logistics Support Planning).

	FY 03	FY 04	FY 05	
Accomplishments/Effort/Subtotal Cost	0.830	0.568	0.565	
RDT&E Articles Quantity				

Program management support.

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EXHIBIT R-2, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603658N Cooperative Engagement Capability	2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 04 Pres Controls)	109.606	72.506	76.918
Current President's Budget: (FY05 Pres Controls)	106.020	86.725	103.452
Total Adjustments	-3.586	14.219	26.534
Summary of Adjustments			
SBIR/STTR Transfer	-2.558		
BSO Adjustments	-1.076		
P3I Improvements/Track Management			32.000
Reprogramming			-4.923
Economic Assumptions	.048		
Manpower Adjustments			-.074
NWCF Rates			-.469
Congressional Undistributed Reductions		-1.081	
Congressional Increases		15.300	
Subtotal	-3.586	14.219	26.534

Schedule:

Accelerated deployment of USS NIMITZ Battle Group required replanning of Follow-on Test and Evaluation-2 (FOT&E) schedule of integrated CEC/E-2C HAWKEYE 2000 aircraft. FOT&E-1 tests with USS NIMITZ Battle Group was completed December 2002. Several engineering tests have been successfully completed in FY 2003 in preparation for FOT&E -2 which will be completed in March 2004.

Technical:

CEC will collaborate with Single Integrated Air Picture (SIAP) Systems Engineering track management solution. P3I developments will address a smaller, cheaper, less power and cooling hardware solutions, including alternative communications and a lightweight antenna.

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603658N Cooperative Engagement Capability	2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
Cooperative Engagement Capability/OPN	70.068	66.597	57.531	46.697	46.484	62.041	49.802	57.270	783.596
E-2C Aircraft /APN	35.500	27.300	15.600	5.300	5.300	21.300	27.100	388.100	566.400
Various - SCN Procurement	12.900	12.900	6.400	45.100	19.300	51.500	58.000	382.400	747.700
Development, Marine Corps	.700	6.000	3.000	4.000	.900	.900	.600	Cont.	Cont.

E. ACQUISITION STRATEGY:

The realignment of track management functions with the SIAP SE approach and Navy Open Architecture, while competing System Integrator functions, and utilizing a Pre-planned Product Improvement (P3I) program in lieu of a CEC Block 2 development effort, has been approved by the Over-arching Integrated Product Team (OIPT). A revised acquisition strategy is under development with OSD participation that will reflect this approach and allow for multiple industry participants and focus on joint initiative involvement.

F. MAJOR PERFORMERS:

Raytheon Systems Company, St. Petersburg, FL Development of AN/USG-2 (shipboard) and AN/USG-3 (airborne) equipment and support of testing.
Johns Hopkins University, Applied Physics Laboratory, Laurel, MD Technical Design Agent for AN/USG-2 and AN/USG-3 equipment and support of testing.
Northrop-Grumman Corporation, Bethpage, LI, NY Integration of AN/USG-3 equipment with E-2C HAWKEYE 2000 and Advanced HAWKEYE aircraft.
Naval Surface Weapons Center, Dahlgren, VA Software Support Activity (SSA) and Systems Engineering/Integration Agent (SE/IA).

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603658N Cooperative Engagement Capability				PROJECT NUMBER AND NAME 2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues						
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
AN/USG-2/3 Development	CPAF	Raytheon, St. Petersburg, FL	546.730	25.123	Oct-02	24.169	Oct-03	8.174	Oct-04	Continuing	Continuing	TBD
AN/USG-2/3 Development	CPAF	Award Fees	81.000	4.393	Various	1.500	Various	1.500	Various	Continuing	Continuing	TBD
AN/USG-2/3 Development/TDA	CPFF	JHU/APL, Laurel, MD	228.318	8.548	Nov-02	8.000	Oct-03	8.000	Oct-04	Continuing	Continuing	TBD
Block 2 Development/Competition	CPAF	Various	1.000	10.000	Various					Continuing	Continuing	TBD
P3I Efforts/Track Management	TBD	Various			Oct-02	32.000	Oct-03	67.000	Oct-04	Continuing	Continuing	TBD
E-2C/AHE Aircraft Integration	CPAF	Northrop-Grumman, LI., NY	173.289	10.119	Various	2.000	Oct-03	3.300	Oct-04		188.708	199.387
Tactical Component Network (TCN)	CPFF	Various	3.999	15.455	Oct-02						19.454	19.454
P-3 Aircraft Integration	CPAF	Lockheed-Martin	40.377								40.377	40.377
Baseline 2.2 Development	CPAF	Lockheed-Martin	11.881								11.881	11.881
Space Based IR Sensors (SBIRS)	CPAF	Lockheed-Martin	12.843								12.843	12.843
Modeling & Simulation	PD	PMS-456	5.261							Continuing	Continuing	
In-Service Engineering Activity	WX	NSWC, Port Hueneme, CA	13.642	4.790	Oct-02	2.527	Oct-03	2.285	Oct-04	Continuing	Continuing	
Land Based Test Network	PD	SPAWAR (PMW-159)	1.302								1.302	
Land Based Test Network	PD	NATC, Patuxent River, MD	.957								0.957	
Software Support Activity	WX	NSWC, Dahlgren, VA	51.741	5.731	Oct-02	4.000	Oct-03	3.500	Oct-04	Continuing	Continuing	
Antenna Redesign	RC	NSWC, Crane, IN	6.483								6.483	
Production Engineering Activity	WX	NSWC, Crane, IN	38.524	2.719	Oct-02	1.000	Oct-03	1.000	Oct-04	Continuing	Continuing	
AEGIS Integration	CPAF	Lockheed-Martin	124.933								124.933	124.933
SSDS/ACDS Integration	CPAF	Raytheon, San Diego, CA	39.871								39.871	39.871
Area Air Def. Commander (AADC)	CPAF	General Dynamics	10.096								10.096	10.096
Various	Various	Miscellaneous	85.958					2.128	Various	Continuing	Continuing	
SIAP Improvements	CPFF	JHU/APL, Laurel, MD	.000			1.600	Oct-03					
Subtotal Product Development			1478.205	86.878		76.796		96.887		Continuing	Continuing	

Remarks:

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603658N Cooperative Engagement Capability				PROJECT NUMBER AND NAME 2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues						
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
Test Support	CPAF	Raytheon, St. Peters., FL	6.635	1.481	Various	1.219	Oct-03	2.000	Oct-04		11.335	TBD
Test Support	CPAF	Award Fees	.983	.219	Various	.181	Various				1.383	
Test Support	CPFF	JHU/APL, Laurel, MD	9.007	1.000	Nov-02	1.100	Oct-03	.800	Oct-04		11.907	TBD
Test Support	WX	NRL, Washington, DC	5.692	.660	Oct-02	1.230					7.582	
Test Support	WX	NSWC, Port Hueneme, CA	20.170	11.431	Oct-02	1.458	Oct-03	1.000	Oct-04		34.059	
Air Operations Test Support	WX	NAVAIR (PMA-207)	5.409	.600	Oct-02	1.450					7.459	
Test Data Reduction	WX	NWAS, Corona, CA	14.254	2.370	Oct-02	1.440	Oct-03	.800	Oct-04		18.864	
Various	Various	Various	91.473	.551	Various	1.283	Various	1.400	Various		94.707	
Subtotal Test & Evaluation			153.623	18.312		9.361		6.000		Continuing	Continuing	
Remarks:												
Program Management Support	FFP	Various	59.534	.830	Oct-02	.568	Oct-03	.565	10/04	Continuing	Continuing	
Subtotal Management			59.534	.830		.568		.565		Continuing	Continuing	
Remarks:												
Total Cost			1,691.362	106.020		86.725		103.452		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile			DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603658N Cooperative Engagement Capability	PROJECT NUMBER AND NAME 2039/Cooperative Engagement Capability; 2616/BG Interoperability Issues	

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																																
AN/USG-2 (Shipboard)			MS III																													
AN/USG-3 (Airborne)												IOC																				
AN/USG-2 (Shipboard) and AN/USG-3 (Airborne)												FOC																				
Develop PIM Establish SI/DA Contract Production of Mini-Terminal Production of LW Antennas																																
Test & Evaluation Milestones Development Test (AN/USG-3) Operational Test (AN/USG-3) Development/Operational Test (AN/USG-2)			DT-IIIA		DT-IIIB OT-IIIA	OT-IIIB						DT-IIIC		OT-IIIC		DT-IIID	OT-IIID															
Production Milestones AN/USG-2 (Shipboard) AN/USG-3 (Airborne)			FRP LRIP-5				LRIP-6																									
Deliveries	6	3	2	3	2	3	3	1	3	3	3	2	3	4	2	3	6	6	6	5	4	3	3	2	4	4	4	3	3	2	2	1

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603658N Cooperative Engagement Capability				PROJECT NUMBER AND NAME 2039/CEC; 2616/BG Interoperability Issues			
Schedule Profile		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
BLOCK 1:								
Milestone III (MSIII) (AN/USG-2)								
Full Rate Production (AN/USG-2)								
LRIP-5 (AN/USG-3)								
LRIP-6 (AN/USG-3)		3Q03						
FOT&E-1 (AN/USG-3) (DT-IIIA/OT-IIIA) (Start)								
FOT&E-1 (AN/USG-3) (DT-IIIA/OT-IIIA) (Complete)		1Q03						
FOT&E-2 (AN/USG-3) (DT-IIIB/OT-IIIB) (Start)		1Q03						
FOT&E-2 (AN/USG-3) (DT-IIIB/OT-IIIB) (Complete)			1Q-2Q 04					
Initial Operational Capability (AN/USG-3)				1Q05				
Full Operational Capability (FOC) (AN/USG-2/3)				1Q05				
FOT&E-3 (DT-IIIC)			4Q04					
FOT&E-3 (OT-IIIC)				2Q05				
FOT&E-4 (DT-IIID)				4Q05				
FOT&E-4 (OT-IIID)					1Q06			
PRE-PLANNED PRODUCT IMPROVEMENT (P3I):								
Develop Platform Independent Model (PIM)			2Q04					
Establish SI/DA			3Q04					
Production of Mini-Terminal					1Q06			
Production of LtWt Antennas					1Q06			