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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4					R-1 ITEM NOMENCLATURE 0603658N Cooperative Engagement Capability			
COST (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	107.334	109.606	72.506	76.918	98.313	79.785	65.596	63.911
K2039/Cooperative Engagement Capability (CEC)	76.018	84.228	72.506	76.918	98.313	79.785	65.596	63.911
K2616/Battlegroup Interoperability Issues	31.316	25.378						
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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APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603658N Cooperative Engagement Capability	PROJECT NUMBER AND NAME K2039/Cooperative Engagement Capability; K2616/BG Interoperability Issues																	
B. Accomplishments/Planned Program																			
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Systems Engineering/Integration Agent (SE/IA) for development and execution of systems engineering processes.																			
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Block 2 competition development including CEC Baseline 3.0, and preparation/execution of acquisition strategy.																			
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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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RDT&E, N / BA-4	0603658N Cooperative Engagement Capability	K2039/Cooperative Engagement Capability; K2616/BG Interoperability Issues		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget: (FY 03 Pres Controls)	105.689	86.144	41.251	33.839
Current President's Budget: (FY04 Pres Controls)	107.334	109.606	72.506	76.918
Total Adjustments	1.645	23.462	31.255	43.079
Summary of Adjustments				
Congressional program reductions				
Congressional undistributed reductions				
Congressional rescissions				
SBIR/STTR Transfer	-1.457			
Economic Assumptions	-0.300	-0.628		
Block 2 Competition/Development			32.000	37.000
SIAP Improvements			1.600	8.400
Reprogramming	3.999			
Inflation		-1.189	-1.674	-1.658
Miscellaneous Adjustments	-0.597	-0.671	-0.671	-0.663
Congressional increases		25.950		
Subtotal	1.645	23.462	31.255	43.079
Schedule:				
Accelerated deployment of USS NIMITZ Battle Group requires replanning of Follow-on Test and Evaluation (FOT&E) schedule of integrated CEC/E-2C HAWKEYE 2000 aircraft. FOT&E-1 tests with USS NIMITZ Battle Group completed to the extent possible. Rescheduling of FOT&E-2 tests are ongoing and dependent on analysis of FOT&E-1 test results and implementation of corrections, and identity and scheduling of follow-on CEC-equipped battle group. Fleet operational requirements could delay FOT&E-2 testing to FY 2004-05.				
Technical:				
Block 2 Development: Competitive contract award for follow-on spiral development of advanced capabilities representing the next evolution of CEC is planned in FY 2004. Goals of the Block 2 program include reduced system cost, size and weight while improving warfighting capabilities.				
Single Integrated Air Picture (SIAP) Improvements: Initiate implementation of ten (10) key tactical Command and Control (C2) system improvements to improve tracking of airborne targets.				

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Exhibit R-2, RD TEN Project Justification
(Exhibit R-2, page 5 of 10)

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EXHIBIT R-2, RDT&E Project Justification								DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4		PROGRAM ELEMENT NUMBER AND NAME 0603658N Cooperative Engagement Capability			PROJECT NUMBER AND NAME K2039/Cooperative Engagement Capability; K2616/BG Interoperability Issues					
D. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</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>FY 2008</u>	<u>FY 2009</u>	<u>To Complete</u>	<u>Total Cost</u>
Cooperative Engagement Capability/OPN	83.878	71.207	62.845	85.696	64.777	56.158	75.978	67.904	128.185	940.644
E-2C Aircraft /APN	40.480	35.800	43.990	23.670	23.480	29.290	29.680	30.080	358.700	674.500
Various - SCN Procurement	12.300	44.600	21.800	56.800	23.500	41.200	43.500	40.400	332.700	700.200
Procurement, Marine Corps				12.000	17.500					29.500
E. ACQUISITION STRATEGY:										
<p>A full and open, best value competition to develop, produce and field CEC requirements including equipment design and development of a future CEC software baseline is planned. The combined effort is identified as CEC Block 2. The competition will be conducted in FY 2003 with an award expected in FY 2004.</p> <p>Block 2 is expected to be an advanced sensor netting system that preserves the capability demonstrated in the CEC Block 1 OPEVAL, but providing cost, performance, and functional improvements. Notational Block 2 characteristics are expected to include: (1) compliance with evolutionary requirement of the CEC Operational Requirements Document (ORD); (2) potential growth to multi-service applications including compliance with applicable Joint Capstone Requirements Documents; (3) efficient bandwidth utilization; (4) an open network architecture to expand sensor netting track data availability to meet a variety of warfighter needs on a variety of platforms (i.e. ships, aircraft, land sites and vehicles); (5) anti-tamper capabilities; (6) compatibility with legacy combat systems; and (7) compliance with Joint Technical Architecture.</p>										
F. MAJOR PERFORMERS:										
<p>Raytheon Systems Company, St. Petersburg, FL Development of AN/USG-2 (shipboard) and AN/USG-3 (airborne) equipment and support of testing.</p> <p>Johns Hopkins University, Applied Physics Laboratory, Laurel, MD Technical Design Agent for AN/USG-2 and AN/USG-3 equipment and support of testing.</p> <p>Northrop-Grumman Corporation, Bethpage, LI, NY Integration of AN/USG-3 equipment with E-2C HAWKEYE 2000 aircraft.</p> <p>Naval Surface Weapons Center, Dahlgren, VA Software Support Activity (SSA) and Systems Engineering/Integration Agent (SE/IA).</p>										

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Exhibit R-3 Cost Analysis (page 1)								DATE: February 2003				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603658N Cooperative Engagement Capability			K2039/Cooperative Engagement Capability; K2616/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. Peters., FL	546.730	29.665	10/02	9.950	10/03	9.800	10/04	Continuing	Continuing	TBD
AN/USG-2/3 Development	CPAF	Award Fees	81.000	4.393	Various	1.500	Various	1.500	Various		Continuing	TBD
AN/USG-2/3 Development/TDA	CPFF	JHU/APL, Laurel, MD	228.318	8.548	11/02	8.000	10/03	8.000	10/04	Continuing	Continuing	TBD
Block 2 Development/Competition	CPAF	Various	1.000	10.000	Various	32.000	12/03	37.000	12/04	Continuing	Continuing	TBD
E-2C Aircraft Integration	CPAF	Northrop-Grumman, LI., NY	173.289	13.100	10/02	4.800	10/03				191.189	
Tactical Component Network (TCN)	CPFF	Various	3.999	18.000	Various						21.999	21.999
SIAP Improvements	CPAF	TBD				1.600	10/03	8.400	10/04	33.000	43.000	43.000
P-3 Aircraft Integration	CPAF		40.377								40.377	40.377
Baseline 2.2 Development	CPAF	Lockheed-Martin	11.881								11.881	TBD
Space Based IR Sensors (SBIRS)	CPAF	Lockheed-Martin	12.843								12.843	TBD
Modeling & Simulation	PD	PMS-456	5.261								5.261	
In-Service Engineering Activity	WR	NSWC, Port Hueneme, CA	13.642	1.629	10/02	3.000	10/03	2.500	10/04	Continuing	Continuing	
Land Based Test Network	PD	SPAWAR (PMW-159)	1.302								1.302	
Land Based Test Network	PD	NATC, Patuxent River, MD	0.957								0.957	
Software Support Activity	WR	NSWC, Dahlgren, VA	51.741	4.235	10/02	4.000	10/03	3.500	10/04	Continuing	Continuing	
Antenna Redesign	RC	NSWC, Crane, IN	6.483								6.483	
ILS Planning	WR	NSWC, Crane, IN	38.524	0.894	10/02	1.000	10/03	1.000	10/04	Continuing	Continuing	
AEGIS Integration	CPAF	Lockheed-Martin	124.933								124.933	
SSDS/ACDS Integration	CPAF	Raytheon, Sunnyvale, CA	39.871								39.871	TBD
Area Air Def. Commander (AADC)	CPAF	General Dynamics	10.096								10.096	
Various	Various	Miscellaneous	85.958			0.088	10/03	0.653	10/04	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			1,478.205	90.464		65.938		72.353		Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 7 of 10)

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Exhibit R-3 Cost Analysis (page 2)										DATE: February 2003			
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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	11/02	1.306	10/03				9.422	TBD	
Test Support	CPAF	Award Fees	0.983	0.219	Various	0.194	Various						
Test Support	CPFF	JHU/APL, Laurel, MD	9.007	1.000	11/02	1.000	10/03	0.800	10/04		11.807	TBD	
Test Support	WR	NRL, Washington, DC	5.692	1.706	10/02						7.398		
Test Support	WR	NSWC, Port Hueneme, CA	20.170	1.477	10/02	1.000	10/03	1.000	10/04		23.647		
Air Operations Test Support	PD	NAVAIR (PMA-207)	5.409	2.101	10/02						7.510		
Test Data Reduction	WR	NWAS, Corona, CA	14.254	2.000	10/02	1.000	10/03	0.800	10/04		18.054		
Various	Various	Miscellaneous	91.473	8.328	Various	1.500	Various	1.400	Various		102.701		
			153.623	18.312		6.000		4.000		Continuing	Continuing		
Remarks:													
Various	Various	Miscellaneous	59.534	0.830	10/02	0.568	10/03	0.565	10/04	Continuing	Continuing		
Subtotal Management			59.534	0.830		0.568		0.565		Continuing	Continuing		
Remarks:													
Total Cost			1,691.362	109.606		72.506		76.918		Continuing	Continuing		
Remarks:													

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 8 of 10)

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EXHIBIT R4, Schedule Profile																								DATE:								
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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 ☆																			
Test & Evaluation Milestones																																
Development Test (AN/USG-3)		▲	DT-III A	▲								△	DT-III B																			
Operational Test (AN/USG-3)		▲	OT-III A	▲								△	OT-III B																			
Production Milestones																																
AN/USG-2 (Shipboard)			FRP ▲																													
AN/USG-3 (Airborne)			LRIP-5 ▲																													
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

R-1 SHOPPING LIST - Item No. 65

UNCLASSIFIED

Exhibit R-4, Schedule Profile
(Exhibit R-4, page 9 of 10)

UNCLASSIFIED

CLASSIFICATION:

[illegible]

R-1 SHOPPING LIST - Item No. 65

UNCLASSIFIED

Exhibit R-4a, Schedule Detail
(Exhibit R-4a, page 10 of 10)