EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **JUNE 2001**			
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY - BA 4**					R-1 ITEM NOMENCLATURE **Cooperative Engagement Capability 0603658N**					
COST ($ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	**182.307**	**177.612**	**74.231**						**Cont.**	**Cont.**
Cooperative Engagement Capability (CEC) K2039	**108.876**	**117.744**	**74.231**						**Cont.**	**Cont.**
Cooperative Engagement Capability (CEC) K2616	**73.431**	**59.868**	**0.000**						**0.000**	**Cont.**
Quantity of RDT&E Articles										**22**

A. (U) 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.

(U) 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, 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 which 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.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **JUNE 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA 4**	R-1 ITEM NOMENCLATURE **Cooperative Engagement Capability 0603658N**

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 2000 ACCOMPLISHMENTS:
- (U) ($ 62.759) Continued CEC hardware and software engineering efforts and DA efforts at Raytheon Systems Company, St. Petersburg, FL.
- (U) ($ 16.809) Continued CEC TDA engineering efforts at JHU/APL.
- (U) ($ 11.600) Continued CEC E-2C integration efforts at PMA-231.
- (U) ($ 4.600) Continued development of software baseline 2.2 (AEGIS Navy Area and Theater Wide TBMD integration) with Lockheed-Martin.
- (U) ($ 25.441) Continued field support (In-service Engineering; software support; Integrated Logistics Support Planning).
- (U) ($ 26.824) Continued T&E efforts; conduct engineering, developmental and operational testing.
- (U) ($ 14.358) Continued Navy integration exercises and integration efforts.
- (U) ($ 9.361) Continued Program Management support.
- (U) ($ 10.555) Supported at-sea prototypes, risk reduction, systems engineering, and software development which helped the production Area Air Defense Commander system meet Joint Interoperability requirements.

(U) FY 2001 PLAN:
- (U) ($ 59.249) Continue CEC hardware and software engineering efforts at Raytheon Systems Company, St. Petersburg, FL.
- (U) ($ 14.734) Continue CEC TDA engineering efforts at JHU/APL.
- (U) ($ 13.536) Continue CEC E-2C integration efforts at PMA-231.
- (U) ($ 6.400) Continue development of software baseline 2.2 (AEGIS Navy Area and Theater Wide TBMD integration) with Lockheed-Martin.
- (U) ($ 15.466) Continue field support (In-service Engineering; software support; Integrated Logistics Support Planning).
- (U) ($ 40.705) Complete AN/USG-2 T&E efforts; conduct engineering, developmental and operational testing.
- (U) ($ 17.256) Continue Navy and integration exercises and integration efforts.
- (U) ($ 6.400) Continue Program Management support.
- (U) ($ 3.866) Portion of extramural program reserved for Small Business Innovator Research assessment in accordance with 15 USC 638.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: JUNE 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA 4**	R-1 ITEM NOMENCLATURE **Cooperative Engagement Capability 0603658N**

(U) PROGRAM ACCOMPLISHMENTS AND PLANS: (Cont.)
(U) FY 2002 PLAN:
- (U) ($ 17.000) Continue CEC hardware and software engineering efforts at Raytheon Systems Company, St. Petersburg, FL.
- (U) ($ 11.000) Continue CEC TDA engineering efforts at JHU/APL.
- (U) ($ 32.778) Continue CEC E-2C integration efforts at PMA-231.
- (U) ($ 6.252) Continue field support (In-service Engineering; software support; Integrated Logistics Support Planning).
- (U) ($ 1.979) Continue Navy and integration exercises and integration efforts.
- (U) ($ 5.222) Continue Program Management support.

B. (U) Program Change Summary:

	FY 2000	FY 2001	FY 2002
FY 2001 President's Budget:	189.877	119.257	49.135
Appropriated Value:	190.931	179.257	
Adjustments to FY 2000/2001 Appropriated Value/FY 2001 President's Budget :	-8.624	-1.645	25.096
FY 2002 Pres Budget Submit:	182.307	177.612	74.231

Funding: FY 2000 adjustments are due to a Small Business Innovative Research (SBIR) reduction ($-5.181); FY 2000 Midyear execution reduction ($-1.358); an across the board reduction ($-1.054); a Congressional Rescission reduction ($-.744) and a general reduction ($-.287). FY 2001 adjustments are based on a Congressional Rescission reduction ($-1.255) and a Government-Wide Rescission reduction ($-.390). FY 2002 adjustments are based on a CEC E-2C Aircraft Integration increase ($+32.000); miscellaneous changes ($+1.696); and a CEC Reduced Baseline Integration reduction ($-8.600)

Schedule: The CEC/E-2C aircraft FOT&E-1 schedule has been delayed due to non-availability of test aircraft, and modification of E-2C system tracker/CEC system interface requirements. FOT&E-1 was scheduled to start in October 2001 and complete in February 2002. FOT&E-1 has been revised to start in January 2002 and complete in August 2002. The FOT&E-2 schedule, and the planned Initial Operational Cabability (IOC) of a CEC-equipped E-2C squadron in December 2003 remains unchanged.

Technical: Not applicable.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **JUNE 2001**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA 4**	R-1 ITEM NOMENCLATURE **Cooperative Engagement Capability 0603658N**

C. (U) Other Program Funding Summary:	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
OP,N (CEC) P-1 Item No. 46	59.416	33.542	77.133						Continuing	1,190.537
SC,N (Various)	48.000	20.500	20.100						Continuing	305.500
AP,N (E-2C) (BA-1/5/6)	38.500	14.900	33.000							143.900
O&M,N (CEC)	19.305	16.293	16.373						Continuing	Continuing

D. (U) ACQUISITION STRATEGY:
The CEC program was approved for Low Rate Initial Production (LRIP-1) in March 1998 and a sole source contract was awarded to Raytheon Systems Company, St. Petersburg, FL.
Follow-on procurement of eleven (11) systems (LRIP-2) was authorized 14 May 1999 and an additional twelve (12) systems (LRIP-3) was authorized 7 April 2000. A fourth LRIP procurement is planned for 3rd quarter of FY 2001, with Full Rate Production (FRP) planned for December 2001 following completion of OPEVAL.

The Navy, Raytheon Systems Company, and Lockheed-Martin Corporation have reached an agreement whereby:
(a) Raytheon will be the design agent for Ship Self Defense System (SSDS) Mark 2, and design agent and implementor of CEC baseline 2.1 supporting SSDS Mark 2.
(b) Lockheed-Martin will be the design agent for CEC baseline 2.2 effort which supports CEC integration into the TBMD program.
(c) The Navy will plan for full and open competition for procurement of CEC equipment and engineering support.

Concurrent contracts were awarded by the Navy on 30 April 1999 in accordance with the agreement, and award fees are structured to ensure cooperation between the contractors. Both contractors participate as members of a "Navy Review Team" of each other's design, and participate in a Navy-led task to define future architecture of CEC in a Battle Force context.

E. (U) SCHEDULE PROFILE: See Next Page.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: JUNE 2001
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N/BA 4**	R-1 ITEM NOMENCLATURE **Cooperative Engagement Capability 0603658N**

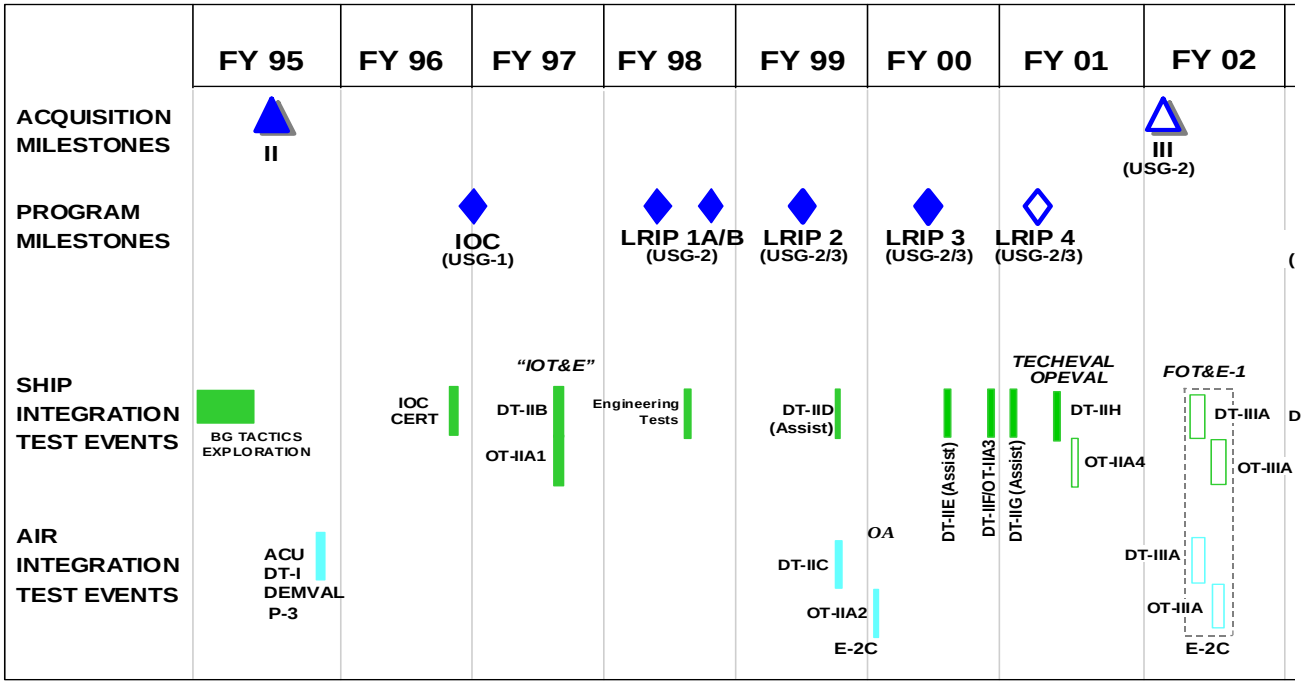

Exhibit R-3 Cost Analysis (page 1) | DATE: **JUNE 2001**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NAME AND NUMBER
RDT&E, N/BA 4	**CEC - 0603658N**	**CEC - Project K2039**

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
AN/USG-2/3 Development	C/CPAF	Raytheon, St. Peters., FL	487.493	62.759	Oct-99	59.249	Oct-00	17.000	Oct-01	CONT.	CONT.	TBD
AN/USG-2/3 Development/TDA	C/CPFF	JHU/APL, Laurel, MD	199.033	16.809	Nov-99	14.734	Nov-00	11.000	Nov-01	CONT.	CONT.	TBD
E-2C Aircraft Integration	C/CPAF	Northrop Grumman	143.738	11.600	Nov-99	13.536	Oct-00	32.778	Oct-01		201.652	
P-3 Aircraft Integration	C/CPAF	Lockheed-Martin	42.210								42.210	42.210
Baseline 2.2 Software Development	SS/CPAF	Lockheed-Martin	1.250	4.600	Jan-00	6.400	Oct-00				12.250	TBD
Space Based IR Sensors (SBIRS)	C/CPAF	Lockheed-Martin	13.426								13.426	TBD
Modeling & Simulation	PD	PMS-456		5.500	Mar-00						5.500	
In-Service Engineering Activity	WR	NSWC, Port Hueneme	3.048	5.828	Oct-99	3.615	Oct-00	2.000	Oct-01	CONT.	CONT.	
Land Based Test Network	PD	SPAWAR (PMW-159)	1.361								1.361	
Land Based Test Network	PD	NATC, Patuxent River	1.000								1.000	
Software Support Activity	WR	NSWC, Dahlgren, VA	32.515	4.911	Oct-99	9.686	Oct-00	3.000	Oct-01	CONT.	CONT.	
Antenna Redesign	RC	NSWC, Crane, IN		6.646	Jul-00						6.646	
ILS Planning	WR	NSWC, Crane, IN	23.271	12.579	Oct-99	1.420	Oct-00	1.500	Oct-01	CONT.	CONT.	
AEGIS Integration	C/CPAF	Lockheed-Martin	119.968			5.200	Oct-00				125.168	
SSDS/ACDS Integration	C/CPAF	Raytheon (Hughes), CA	33.933	2.298	Feb-00	6.700	Oct-00				42.931	TBD
Area Air Def. Commander (AADC)	C/CPAF	General Dynamics		10.555	Sep-00					0.000	10.555	
Various	Various	Miscellaneous	80.056	2.037	Oct-99	9.966	Oct-00	1.731	Oct-01	CONT.	CONT.	
Subtotal Product Development			1,182.302	146.122		130.506		69.009		CONT.	CONT.	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	

Remarks:

Exhibit R-3 Cost Analysis (page 2) | DATE: JUNE 2001

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NAME AND NUMBER
RDT&E, N/BA 4	**CEC - 0603658N**	**CEC - Project K2039**

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Land Based Test Network (DEP)	WR	NSWC, Dahlgren, VA	2.200	0.546	Jan-00	0.385	Dec-00				3.131	
Test Support	C/CPAF	Raytheon, St. Peters., FL	1.278	2.460	Oct-99	2.649	Oct-00				6.387	TBD
Test Support	C/CPFF	JHU/APL, Laurel, MD	1.800	2.309	Nov-99	2.553	Nov-00				6.662	TBD
Test Support	WR	NAWC-AD, Pt. Mugu, CA		0.545	Oct-99	0.335	Oct-00				0.880	
Test Support	WR	NRL, Washington, DC		1.902	Oct-99	2.453	Oct-00				4.355	
Test Support	WR	NSWC, Port Hueneme, CA	7.787	4.415	Oct-99	4.902	Oct-00				17.104	
Test Support	PD	PMS-456		1.250	Jan-00	3.345	Oct-00				4.595	
Test Support	PD	SPAWAR (PMW-159)		0.658	Oct-99	0.699	Oct-00				1.357	
Air Operations Test Support	WR	COMNAVAIRLANT	1.700								1.700	
Air Operations Test Support	WR	NATC, Pax River	4.229	0.709	Oct-99	2.119	Oct-00				7.057	
Air Operations Test Support	PD	NAVAIRSYSCOM (PMA-207)		2.891	Oct-99	1.784	Oct-00				4.675	
Aircraft Test Support	PD	NAVAIRSYSCOM (PMA-231)		0.280	Oct-99	1.115	Oct-00				1.395	
Test Requirements	WR	AFWTF, Puerto Rico		0.812	Oct-99	2.565	Oct-00				3.377	
Test Requirements	WR	COMOPTEVFOR		0.506	Oct-99	1.316	Oct-00				1.822	
Test Data Reduction	WR	NWAS, Corona	6.500	3.089	Oct-99	3.093	Oct-00				12.682	
ECM Test Support (BIG CROW)	MIPR	Kirkland AFB, NM		1.000	Jan-00	1.951	Oct-00				2.951	
Test Support	WR	NSWC, Crane		0.402	Jan-00	0.167	Oct-00				0.569	
Test Support	PD	PMS-400		0.575	Jan-00	2.100	Oct-00				2.675	
Various	Various	Miscellaneous	42.156	2.475	Oct-99	7.174	Oct-00			CONT.	CONT.	
Subtotal T&E			67.650	26.824		40.705		0.000		CONT.	CONT.	
Remarks:												
Program Management Support	C/CPFF	Technautics, Alexandria, VA	8.400	2.691	Oct-98	2.622	Nov-00	2.779	Oct-01		16.492	
Various	Various	Miscellaneous	34.087	6.670	Oct-98	3.778	Oct-00	2.443	Oct-01	CONT.	CONT.	
Subtotal Management			42.487	9.361		6.400		5.222		CONT.	CONT.	
Remarks:												
Total Cost			1,292.439	182.307		177.612		74.231		CONT.	CONT.	
Remarks:												