

EXHIBIT R-2, FY 2001 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604270N

PROGRAM ELEMENT TITLE: Electronic Warfare Development

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Budget</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
E0556 EW Counter Response	62,975	135,061	55,492	33,365	32,732	34,059	44,332	CONT.	CONT.
E2175 Tactical Air Electronic Warfare	69,525	79,609	39,317	25,914	0	0	0	0	537,915
R2260 Specific Emitter Identification	1,680	1,801	1,527	1,577	1,642	1,696	1,672	CONT.	CONT.
Z1742 EW Technical Development and Testing	821	891	945	1005	1046	1,083	1,123	CONT.	CONT.
TOTAL	135,001	217,362	97,281	61,861	35,420	36,838	47,127	CONT.	CONT.
Quantity of RDT&E Articles	458	5	9	0	0	0	0		

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This element includes development of electronic warfare systems for the United States Navy (USN), United States Marine Corps (USMC), and United States Army (USA) tactical aircraft, USMC helicopters, surface combatants, data link vulnerability assessments, precision targeting , USMC communications and non-communications jammers , and development and testing of electronic warfare devices for emergency contingencies.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to full rate production approval decision.

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EXHIBIT R-2a FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

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PROGRAM ELEMENT: 0604270N

PROGRAM ELEMENT TITLE: Electronic Warfare Development

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Budget</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
E0556 EW Counter Response	62,975	135,061	55,492	33,365	32,732	34,059	44,332	CONT.	CONT.
TOTAL	62,975	135,061	55,492	33,365	32,732	34,059	44,332	CONT.	CONT.
Quantity of RDT&E Articles	0	3	7	0	0	0	0		

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The EA-6B weapon system is designed for jamming and destruction of enemy landbased, shipborne and airborne command, control and communications (C3) and radars associated with early warning, target acquisition surveillance, anti-aircraft artillery, air-to-surface, surface-to-surface, and surface-to-air missiles. In this capacity, it will support carrier based tactical aircraft, battle group operations, and joint forces, in dense radar controlled environments. The efforts under this program element (PE) provide for the electronic countermeasures response to these advanced threat weapon systems and C3 networks which are expanding in density and technical complexity. This PE funds the continuing development and integration of all EW systems for the EA-6B electronic support aircraft. The test articles being funded are; two EA-6B aircraft modified to support the Improved Capability (ICAP) III program and eight Low Band Transmitter (LBT) Engineering Development Models (EDMs). The two EA-6B aircraft modified to the ICAP III configuration are for the Engineering and Manufacturing Development (E&MD) phase of the program, (one validation and one verification aircraft will deliver in FY 2001). These aircraft will be used as test articles during government test and evaluation (TECHEVAL/OPEVAL). The LBT EDMs are broken out as; three LBT Antenna Set EDMs for FY 2000 and five Amplifier Set EDMs in FY 2001. The ALQ-99 LBT Antenna Group will provide an expanded war fighting capability against the early warning/acquisition radars and communication links of modern integrated air defense systems. The LBT entered E&MD in September 1996, followed by Full Rate Production (FRP) approval (Milestone III) anticipated in 3rd quarter FY 2002.

A requirement exists to develop an Analysis of Alternatives (AoA) for the Airborne Electronic Attack (AEA) aircraft, the replacement to the EA-6B. This weapon system, known as the AEA follow-on, will be required after the year 2015. In light of this OSD directed the Navy, with Army and Air Force participation and coordination, to prepare an AoA for airborne electronic warfare platforms and methods for use over the next two decades.

A requirement exists to allow the EA-6B to participate in Network Centric Warfare. A method of implementing this requirement is to include the EA-6B on the Link-16 Network. Link-16 will allow the EA-6B to receive and send critical situational awareness and tactical data with other aircraft and the battle group. Funding provided via FY 2000 Congressional addition.

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PROJECT NUMBER: E0556

PROGRAM ELEMENT TITLE: Electronic Warfare Development

PROJECT TITLE: EW Counter Response

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 1999 ACCOMPLISHMENTS:

- (U) (3,664) Continued software/techniques and test support for ongoing new threat development and testing in ICAP II. Continued Coherent Counter Measures (COCM) and Pro Forma Counter Measures (PCM) programs for the EA-6B (level of effort commensurate with available funds).
- (U) (52,591) Continued development of ICAP III system via contract awarded in March 1998. Specifically, FY99 efforts performed systems design, development and fabrication, and began modification of two development aircraft with new tactical jamming and display equipment.
- (U) (4,720) Continued E&MD of the LBT and manufacture of three complete Antenna Set EDM units.
- (U) (2,000) Began development of a prototype for the GPS anti-jamming system (LOCO GPSI).

2. FY 2000 PLAN:

- (U) (8,700) Continue software/techniques and test support for ongoing new threat development and testing in ICAP II. Continue COCM and PCM programs for the EA-6B (level of effort commensurate with available funds).
- (U) (74,619) Continue development of ICAP III system. Specifically, FY00 efforts will perform laboratory testing, perform systems design, development and fabrication, and modification of two development aircraft with new tactical jamming and display equipment.
- (U) (4,000) Continue E&MD of the LBT and manufacture of three Antenna Sets and five Amplifier Set EDM units.
- (U) (29,230) Develop Link-16 system integration into the EA-6B ICAP III aircraft and provide/receive situational awareness data as related to aircraft/strikegroup routing.
- (U) (4,872) Demonstrate improved reliability and maintainability, and lower weight technology migration via the use of Spraycool vapor cooling technology on the EA-6B.
- (U) (9,743) Conduct or develop an Analysis of Alternatives for the follow-on airborne electronic attack platform.
- (U) (3,897) Develop a prototype for the GPS anti-jamming system (LOCO GPSI).

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PROJECT TITLE: EW Counter Response

3. FY 2001 PLAN:

- (U) (9,087) Continue software/techniques and test support for ongoing new threat development and testing in ICAP II. Continue COCM and PCM programs for the EA-6B (level of effort commensurate with available funds).
- (U) (39,466) Continue development of ICAP III system. Specifically, FY01 efforts will continue development of EDM units, perform laboratory and flight testing, continue systems design, development and fabrication, and modification of two development aircraft with new tactical jamming and display equipment. Additionally, an operational assessment will begin late in the fiscal year as an interim evaluation of system performance.
- (U) (3,962) Continue engineering, manufacturing development, and testing of LBT.
- (U) (2,977) Continue an Analysis of Alternatives (AoA) for the Airborne Electronic Attack (AEA) aircraft replacement for the EA-6B.

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PROJECT NUMBER: E0556

PROGRAM ELEMENT TITLE: Electronic Warfare Development

PROJECT TITLE: EW Counter Response

(U) B. PROGRAM CHANGE SUMMARY

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) FY 2000 President's Budget:	64,964	87,319	48,574
(U) Appropriated Value:	65,373	87,319	
(U) Adjustments from President's Budget:	-1,989	+47,742	+6,918
(U) FY2001 President's Budget Submit:	62,975	135,061	55,492

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1999 net due to minor pricing adjustments offset by an increase for LOCO GPSI.

The FY 2000 net increase of \$47,742 thousand reflects an increase of \$4,000 thousand for LOCO GPSI development, an increase of \$30,000 thousand for EA-6B Link 16, an increase of \$5,000 thousand for ICAP III Spray Cool Technology, an increase of \$9,439 thousand for an AEA/AoA, and a decrease of \$697 thousand for an Across-the-Board Congressional Recission.

The FY 2001 net increase of \$6,918 thousand reflects an increase of \$5,000 thousand for Acquisition Stability funding, an increase of \$3,000 thousand for AEA/AoA aircraft replacement offset by decreases for minor pricing and inflation adjustments.

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(U) Schedule: LBT milestones have been adjusted due to deletion of LRIP phase. Test schedule changes necessitated elimination of LRIP phase. MS III is now scheduled for third quarter FY 2002.

(U) Technical: Not applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY

<u>Appn</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Budget</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>
<u>APN</u>	<u>208,851</u>	<u>264,517</u>	<u>203,102</u>	<u>250,974</u>	<u>217,489</u>	<u>205,336</u>	<u>176,165</u>	<u>696,700</u>

Related RDT&E

(U) P.E. Not applicable.

(U) D. ACQUISITION STRATEGY:

- The LBT development contract occurred following a full and open competition and was awarded to BAE Systems (formerly MARCONI). Following development and successful DT/OT, sole source production contracts will be awarded in FY 2002.
- The ICAP III contract, an E&MD CPIF/AF basic contract with two Fixed Price Incentive (FPI) production options, was awarded to a Northrop Grumman team in March 1998 following a full and open competition and Milestone II. The contract established an over-target baseline in March 1999, to reflect the independent government estimate. At that time the contract was changed from a CPIF/AF to a strictly CPAF contract. Completion of these events established formal milestones and changes in schedule. An LRIP decision will occur in FY 2002 following an operational assessment. Formal technical and operational evaluations (DT/OT) will occur in FY 2002 and FY 2003. Milestone III and FRP are scheduled for FY 2003.

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PROJECT NUMBER: E0556

PROGRAM ELEMENT TITLE: Electronic Warfare Development

PROJECT TITLE: EW Counter Response

(U) E. SCHEDULE PROFILE

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>TO COMPLETE</u>
(U) Program Milestones				3Q/02 Low Band TX Milestone III 2Q/03 ICAP III Milestone III
(U) Engineering Milestones	3Q ICAP III PDR	2Q ICAP III CDR		
(U) T&E Milestones			3Q/01 to 2Q/02 Low Band TX DT/OT	2Q/02 to 1Q/03 ICAP III DT/OT
(U) Contract Milestones				3Q/02 Low Band TX FRP

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EXHIBIT R-3, FY 2001 RDT&E,N COST ANALYSIS

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BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604270N

PROJECT NUMBER: E0556
PROJECT TITLE: EW Counter Response

<u>Cost Categories:</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior Yrs Cost</u>	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>FY 2001 Cost</u>	<u>FY 2001 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
Systems Engineering	WX	NRL, Wash. DC	5,816	140	Oct 98	900	Oct 99	855	Oct 00	CONT	CONT	
Systems Engineering	WX	NADEP, JAX	3,099	370	Oct 98	450	Oct 99	609	Oct 00	CONT	CONT	
Systems Engineering	WX	NSWC, Crane	4,592	418	Oct 98	1,800	Oct 99	618	Oct 00	CONT	CONT	
Systems Engineering	WX	NAWCAD, PAX	5,585	1,434	Oct 98	3,400	Oct 99	2,395	Oct 00	CONT	CONT	
Systems Engineering	WX	NAWCAD, LKE	1,864	34	Oct 98	150	Oct 99	285	Oct 00	CONT	CONT	
Systems Engineering	WX	NAWCWD, PT MUGU	8,489	1,785	Oct 98	4,785	Oct 99	4,325	Oct 00	CONT	CONT	
Primary Hardware Development	CPFF	BAES Lansdale, PA	15,227	4,720	Nov 98	4,000	Nov 99	3,962	Nov 00	0	27,909	27,909
Primary Hardware Development	CPAF	Northrop Grumman, Bethpage, NY	19,500	45,591	Nov 98	64,412	Nov 99	29,948	Nov 00	13,718	173,169	173,169
Award Fees	CPAF	Northrop Grumman, Bethpage, NY	0	1,599	May 99	1604	Apr 00	1,795	Apr 01	3,569	8,567	8,567
Award Fees	CPAF	Northrop Grumman, Bethpage, NY	0	1,705	Apr 00	1603	Apr 01	1,795	Apr 02	0	5,103	5,103
Award Fees	CPAF	Northrop Grumman, Bethpage, NY	0	413	Nov 99	0	Nov 00	0	Nov 01	0	413	413
Systems Engineering	Various	Various	41,440	1,128	Nov 98	1,550	Nov 99	928	Nov 00	CONT	CONT	
BTR for LOCO GPSI (E2422)	PD	SPAWAR	0	2,000	0	3,897	0	0	0	0	5,897	5,897
EA-6B Connectivity/Link 16	Various	Various	0	0	0	29,230	0	0	0	0	29,230	
ICAP III Spray Technology	Various	Various	0	0	0	4,872	0	0	0	0	4,872	
AEA Studies and AoA	Various	Various	0	0	0	9,743	Apr 00	2,977	Nov 00	49,000	61,720	
Subtotal Product Development			105,612	61,337		132,396		50,492		CONT	CONT	

Remarks: 1. The total cost figure for the BAES and the Northrop Grumman contracts are the Independent Government Estimate figures for total contract efforts less award fees, which are listed separately. The target value of contract figures are the total estimated cost of the awarded contracts less the award fees.
 2. The Northrop Grumman ICAP III contract is a CPAF type. The Award Fee Period runs from March of one year until March of the following year; thus 6 months of the period is in one fiscal year (FY) and 6 months in the following FY. Legal and Comptroller rulings require that the Award Fee amount for any FY be prorated across the period. This requires setting aside/committing \$1,705 of FY-99, \$1,603 of FY00, and \$1,795 of FY01 funding until midyear of the following FY. At that time, the award fee will be determined and the funding obligated and awarded.
 3. AEA Studies and AoA will be conducted based on guidance from USD (A&T) in coordination with the Army and Air Force.

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EXHIBIT R-3, FY 2001 RDT&E,N COST ANALYSIS

DATE: Feb 2000

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PROJECT NUMBER: E0556
PROJECT TITLE: EW Counter Response

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total Prior Yrs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support	SS/FP	JHU/APL, Columbia, MD	0	1,638	Nov 98	1,715	Nov 99	1,000	Nov 00	CONT	CONT	
Development Support	Various	MISC	12,009	0	0	0	0	0	0	0	0	0
Subtotal Support			12,009	1,638		1,715		1,000		CONT	CONT	

Remarks:

Operational Test and Evaluation WX OPTEVFOR, Norfolk, VA 1,459 0 Nov 98 950 Nov 99 4,000 Nov 00 CONT CONT

Subtotal Test & Evaluation 1,459 0 950 4,000 CONT CONT

Remarks: Funding is required to conduct ICAP III and LBT operational assessment planning, execution, and reporting.

Subtotal Management 0 0 0 0 0 0

Remarks:

Total Cost 119,080 62,975 135,061 55,492 CONT CONT

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DATE: FEBRUARY 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604270N

PROJECT NUMBER: E2175

PROGRAM ELEMENT TITLE: Electronic Warfare Development

PROJECT TITLE: TACAIR EW

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Estimate</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
E2175 Tactical Air Electronic Warfare	69,525	79,609	39,317	25,914	0	0	0	0	537,915
Quantity of RDT&E Articles	458	2	2	0	0	0	0	0	0

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: INTEGRATED DEFENSIVE ELECTRONIC COUNTERMEASURES (IDECM): This joint service subproject develops the new techniques generator and fiber optic towed decoy of the Radio Frequency Countermeasures (RFCM) Subsystem as well as the Navy-unique portions of the Common Missile Warning System (CMWS) and Advanced Strategic and Tactical Expendables (ASTE). It also integrates RFCM, CMWS and ASTE with Radar Warning Receiver (RWR), Countermeasures Dispensing Set (CMDS) and associated cockpit controls and displays to provide the lead aircraft (F/A-18E/F) with increased survivability against Infrared/Radio Frequency (IR/RF) threats.

(U) AN/ALR-67(V)3&4 RADAR WARNING RECEIVER: This subproject is developing the system which provides enhanced situational awareness by providing accurate azimuth display of all programmed threats, independent of aircraft attitude. This also acts as Electronic Warfare (EW) Bus Controller.

(U) AN/ALE-50 ADVANCED AIRBORNE EXPENDABLE DECOY (AAED): This Joint Service (with Air Force) subproject is developing the system which will decoy enemy radio frequency homing missiles away from friendly aircraft.

(U) FLEET ELECTRONIC WARFARE SUPPORT GROUP (FEWSG): This subproject develops new EW equipment and technology which is used to provide realistic hostile EW threat environment, and support the evaluation and development of tactics and training.

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PROGRAM ELEMENT: 0604270N

PROJECT NUMBER: E2175

PROGRAM ELEMENT TITLE: Electronic Warfare Development

PROJECT TITLE: TACAIR EW

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 1999 ACCOMPLISHMENTS:

- (U) (\$62,034) IDECM: Continued funding E&MD contract for IDECM RFCM subsystem. Performed IDECM RFCM subsystem operational assessment (OA) on F/A-18. Continued A-Kit design contract efforts for integration of the RFCM subsystem onto the F/A-18E/F and integration of CMWS/ASTE subsystems onto the AV-8B and F/A-18E/F. Provided funding to support Navy unique efforts in the Joint Service CMWS/ASTE programs. Continued RFCM subsystem testing on the F/A-18. Continued MPLC transition to IDECM configuration.
- (U) (\$2,325) ALR-67(V)3: Completed all RDT&E,N efforts. Completed OPEVAL. Corrected deficiencies after OPEVAL report. Completed MS III.
- (U) (\$3,471) AN/ALE-50/AAED: Completed logistics development of CASS, Depot, and 1-Level TPS and patch panels to conduct SRA maintenance. Completed OPEVAL on F/A-18E/F.
- (U) (\$1,695) FEWSG: Completed prototype and tested multi-threat frequency agile AST-6 Hi-J Band. Completed research I-Band ALQ-167 DRFM frequency extension. Completed testing and prototyping of AST-6(V)X5 Airborne intercept Radars Simulator. Completed testing and evaluation ALQ-167(V)62 techniques. Completed testing of prototype conversion of ALQ-167(V)40 to (V)43. Completed research 200KW Traveling Wave Tube Amplifier (TWTA) for ALQ-167. Completed equipment exploitation.

2. FY 2000 PLAN:

- (U) (\$79,609) IDECM: Continue funding Engineering and Manufacturing Development (E&MD) contract for IDECM RFCM subsystem. Continue A-Kit design contract efforts for integration of the RFCM subsystem onto the F/A-18E/F and integration of CMWS/ASTE subsystems onto the AV-8B and F/A-18E/F. Provide funding to Navy unique efforts in the Joint Service CMWS and ASTE programs. Conduct RFCM subsystem DT assist testing on the F/A-18E/F. Complete MPLC transition to IDECM configuration. Complete IDECM RFCM subsystem operational assessment (OA).

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PROGRAM ELEMENT TITLE: Electronic Warfare Development

PROJECT TITLE: TACAIR EW

3. FY 2001 PLAN:

- (U) (\$39,317) IDECM: Continue funding Engineering and Manufacturing (E&MD) contract for IDECM RFCM subsystem at a reduced level. Continue A-Kit design efforts for integration of the RF subsystem into the F/A-18E/F and integration of CMWS/ASTE subsystems onto the AV-8B and F/A-18E/F. Provide funding to Navy unique efforts in the Joint Service CMWS/ASTE programs. Conduct RFCM subsystem TECHEVAL and ASTE subsystem developmental testing on the F/A-18E/F and ASTE subsystem testing on the AV-8B.

(U) B. PROGRAM CHANGE SUMMARY

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) FY 2000 President's Budget:	67,396	73,051	32,288
(U) Appropriated Value:	69,987	73,051	
(U) Adjustments from Pres Budget:	+2,129	+6,558	+7,029
(U) FY 2001 President's Budget Submit:	69,525	79,609	39,317

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1999 net increase is due to increases for IDECM offset by decreases for minor pricing and inflation adjustments.

(U) The FY 2000 net increase of \$6,558 reflects an increase of \$7,000 thousand Congressional add for IDECM development (project E2635), a decrease of \$442K for an Across-the-Board reduction/recision.

(U) The FY 2001 net increase is due to program restructuring and pricing and inflation adjustments.

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PROJECT TITLE: TACAIR EW

CHANGE SUMMARY EXPLANATION (cont'd):

(U) Schedule: ALR-67(V)3 FRP (MS III) moved from 3Q/99 to 4Q/99. IDECM DT IIB moved from 2Q/99-3Q/99 to 3Q/99-4Q/99. IDECM DT IIA moved from 1Q/99-4Q/99 to 1Q/99-3Q/00. IDECM RFCM LRIP moved from 4Q/99 to 1Q/01. RFCM OT-IIA Operational Assessment (OA) from 3Q/99-4Q/99 to 1Q/00-1Q/00. IDECM DT IIC moved from 1Q/00-3Q/00 to 1Q/01-4Q/01. RFCM OPEVAL OT-IIA moved from 3Q/00-4Q/00 to 4Q/01-2Q/02.

(U) Technical: Not applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY

<u>Appn</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Budget</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>
APN Line 45 - AN/ALR-67(V)3	10,200	24,440	10,429	16,744	20,989	20,370	22,455	171,121
APN Line 38- FEWSG	555	596	605	655	622	628	642	5,446
APN Line 45 - IDECM	0	0	0	0	0	0	0	207,398

Related RDT&E

(U) P.E 0604270N (Advanced EW Technology)

(U) P.E 0604256N (Threat Simulator Development)

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PROJECT TITLE: TACAIR EW

(U) C. ACQUISITION STRATEGY:

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IDECM- Sole source LRIP contract (FY01), sole source FRP (FY02) contract with one option (FY03); full and open competition FRP contract with options (FY04 and beyond) AN/ALR-67(V)3-Sole source fixed price for LRIP with one fixed price option for production.

(U) D. SCHEDULE PROFILE

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>To Complete</u>
(U) Program Milestones	4Q/99 ALR-67(V)3 FRP (MS III)		1Q/01 RFCM LRIP	
(U) Engineering Milestones				2Q/02 RFCM MS III
(U) T&E Milestones				4Q/03 IDECM MS III
	3Q-4Q/99 AAED SYS OPEVAL (F-18)			
	1Q/99-3Q/00 IDECM DT IIA		1Q/01-4Q/01 IDECM DT-IIC 4Q/01-2Q/02 OT-IIA RFCM OPEVAL	
	3Q/99-4Q/99 IDECM DT IIB	1Q/00-1Q/00 RFCM OT-IIA(OA)		4Q/02-2Q/03 IDECM DT-IID 2Q/03-3Q/03 OT-IIB IDECM OPEVAL RFCM FOT&E
(U) Contract Milestone				

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UNCLASSIFIED**

EXHIBIT R-3, FY 2001 RDT&E,N COST ANALYSIS

DATE

February 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604270N

PROJECT NUMBER: E2175

PROJECT TITLE: TACAIR EW

<u>Cost Categories:</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior Yrs Cost</u>	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>FY 2001 Cost</u>	<u>FY 2001 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
Primary HDWR DEV(AN/ALR-67(V)3)	SS-CPFF	RAYTHEON/CA EL SEGUNDO	15789	1,741	5/99	0		0			17,530	17,530
Primary HDWR DEV (AN/ALE-50)	CPFF	RAYTHEON/CA GOLETA	8,697	1,175	12/98	0		0			9,872	9,872
Integrated Logistics SPT (AN/ALE-50)	CPFF	RAYTHEON/CA GOLETA,CA	16,637	1,250	12/98	0		0			17,887	17,887
Ancillary Hardware Development(IMPLC)		RAYTHEON/CA GOLETA,CA	18,106	3,136	1/99	5,100	10/99	250	11/00		26,592	26,592
Software Development (IDECM)	CPFF	RAYTHEON/CA EL SEGUNDO	3,673	450	4/99	750	11/99	250	11/00		5,123	5,123
Primary Hardware Development (CMWS)	CPAF	SANDERS/NH	9,975	181	2/99	45	1/00	90	1/01	275	10,566	170,000
Primary Hardware Development (IDECM)	C-CPIF	SANDERS/NH	51,168	32,262	10/98	41,350	10/99	26,000	11/00	5,531	156,311	222,000
Primary Hardware Development IDECM	C-CPIF	SANDERS/NH	0	2,607	6/99	0		0			2,607	
Primary Hardware Develop (Award Fee)	AWARD	SANDERS/NH	852	0		0					852	852
Software Development (IDECM)	*CPAF	TRACOR/TX	2,275	0		0		0			2,275	2,275
Primary Hardware Development (ASTE)	*CPAF	TRACOR/TX	4,564	1,740	11/98	338	11/99	0			6,642	6,642
Software Development (IDECM)	CPFF	LITTON/CA	4,336	0		0		100	12/00		4,436	4,436
Aircraft Platform Integration (IDECM)	FFP	BOEING, MO	55,659	2,200	12/98	5,478	12/99	500	12/00	500	64,337	64,337
Government Engineering Support	WX/RX	CHINA L/CA	29,916	9,870	10/98	13,041	10/99	3,361	11/00	14,516	70,704	
Government Engineering Support	WX/RX	PMTCC,CA	36,882	1,863	12/98	0		0		0	38,745	
MISCELLANEOUS (efforts < \$1M each)		VARIOUS	10,205	3,407	12/98	4,206	12/99	1,420	11/00	1,000	20,238	
Subtotal Project Development			268,734	61,882		70,308		31,971		21,822	454,717	

Remarks: Sanders (IDECM) target contract value includes Air Force funding and contractor investments. Navy portion of Sanders (IDECM RFCM) contract is only \$163.5M. Sanders (CMWS) target contract value includes Army and Air Force funding and contractor investments. Navy portion of Sanders (CMWS) contract is \$10.5M. TRACOR (ASTE) target contract value includes Air Force funding and contractor investments. Navy portion of TRACOR contract is \$8.9M. *TRACOR award fee was AIR FORCE funded.

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DATE February 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604270N

PROJECT NUMBER: E2175
PROJECT TITLE: TACAIR EW

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total Prior Yrs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Program Management Support		NAWC-PAX	18,002	824	10/98	500	11/99	500	11/00	250	20,076	
MISCELLANEOUS (efforts < \$1m each)		Various	5,614	1,010	10/98	675	12/99	625	11/00	400	8,324	
Subtotal Support			23,616	1,834		1,175		1,125		650	28,400	
Remarks												
ENGINEER/LOGISTIC/TECH SPT	WX	NAWC-AD/PAX	18,268	2,140	10/98	1,335	10/99	3,222	11/00	1,007	25,972	
ENGINEERING/TECH SPT	WX	NAWC-WD,CA	12,882	3,369	10/98	6,491	10/99	2,736	11/00	2,235	27,713	
MISCELLANEOUS (EFFORTS <\$1M EACH)			50	300	10/98	300	11/99	263	11/00	200	1,113	
Subtotal Test & Evaluation			31,200	5,809		8,126		6,221		3,442	54,798	
Remarks												
Subtotal Management			0	0		0		0		0	0	
Total Cost			323,550	69,525		79,609		39,317		25,914	537,915	

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604270N PROJECT NUMBER: R2260
PROGRAM ELEMENT TITLE: Electronic Warfare Development PROJECT TITLE: Special Emitter ID

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1999 BUDGET	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R2260 Specific Emitter Identification	1,680	1,801	1,527	1,577	1,642	1,696	1,672	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project supports systems development and collection of Specific Emitter Identification (SEI) information from National Technical Means (NTM) to track commercial ships over 200 gross registered tons world-wide. Research and development will cover improvements and enhancements to Electronic Intelligence technology. This will include improved/next generation SEI technology for miniaturization and automation of hardware, national collection systems, signal processing and analysis, and de-interleaving of signals. Propagation in a multi-path signal environment will also be assessed. All work on this project will be undertaken in pursuit of goals stated by the Office of Naval Intelligence and the National Security Agency in support of the Worldwide Ship Tracking Program.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 1999 Accomplishments:

(U) (\$1,680) Next generation SEI technology was developed to provide miniaturized, automated, high fidelity operation. SEI hardware and enhanced windows-based software was fielded at operational sites overseas and tested for acceptable operation. Extended signal processing technology was demonstrated to optically process data for increased throughput and reduced size.

(U) FY 2000 PLAN:

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Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, page 17 of 23)

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604270N PROJECT NUMBER: R2260
PROGRAM ELEMENT TITLE: Electronic Warfare Development PROJECT TITLE: Special Emitter ID

(U) (\$1,801) Work will address the need for more noise-robust algorithms for increased SEI resolution and precision. Application of the new algorithms will permit de-interleaving and identification of modern complex wide-band signals.

(U) FY 2001 PLAN:

(U) (\$1,527) SEI technology will be extended to address intentionally modulated and other emerging threats. Miniaturized SEI technology will be finalized for transition in tactical platforms and missile systems.

B. (U) PROGRAM CHANGE SUMMARY:

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) FY 2000 President's Budget	1,688	1,811	1,813
(U) Appropriated Value	1,697	1,811	
(U) Adjustments from FY 2000 PRESBUDG	-8	-10	-286
(U) FY 2001 President's Submission	1,680	1,801	1,527

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 1999 adjustment reflects inflation (\$-8). The FY 2000 adjustment reflects across-the-board reduction (\$-10). The FY 2001 adjustment reflects minor pricing adjustments.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, page 18 of 23)

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EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604270N
PROGRAM ELEMENT TITLE: Electronic Warfare Development

PROJECT NUMBER: R2260
PROJECT TITLE: Special Emitter ID

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:

(U) PE 0602270N Electronic Warfare Technology
(U) PE 0603270N Advanced Electronic Warfare Technology

D. SCHEDULE PROFILE: Not applicable.

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Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, page 19 of 23)

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EXHIBIT R-3 FY 2001 RDT&E,N BUDGET JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604270N

PROJECT NUMBER: R2260

PROGRAM ELEMENT TITLE: Electronic Warfare Development

PROJECT TITLE: Specific Emitter ID

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
a. Software Development	400	394	345
b. Government Engineering Support	160	207	178
c. Developmental Test & Evaluation	322	356	280
d. Primary Hardware Development	458	504	453
e. Contractor Engineering Support	300	300	236
f. Program Management	40	40	35
Total	1,680	1,801	1,527

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EXHIBIT R-3 FY 2001 RDT&E,N BUDGET JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604270N
 PROGRAM ELEMENT TITLE: Electronic Warfare Development

PROJECT NUMBER: R2260
 PROJECT TITLE: Specific Emitter ID

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING: (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/Contract Government Method/ Performing Fund Type Total Activity Vehicle		Award/ Oblig Date	Perform Activity EAC	Project Office EAC	Total FY 1998 & Prior	FY 1999 Budget	FY 2000 Budget	FY 2001 Budget	To Complete
Product Development									
TRW	FFP	10/98	2,500	2,500	400	541	574	500	885
	2,500								
NRL	WX	10/98	N/A	N/A	562	599	618	500	cont.
	cont.								
Support and Management									
NRL	WX	10/98	N/A	N/A	60	70	90	80	cont.
	cont.								
Test and Evaluation									
KAMAN		10/98	1,900	1,900	204	300	322	277	1001
1,900									
NRL	WX	10/98	5,649	5,649	150	170	197	170	5,112
5,649									

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EXHIBIT R-3 FY 2001 RDT&E,N BUDGET JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604270N

PROJECT NUMBER: R2260

PROGRAM ELEMENT TITLE: Electronic Warfare Development

PROJECT TITLE: Specific Emitter ID

GOVERNMENT FURNISHED PROPERTY

Contractor/ Contract Government Method/	Award/	Project	Total						
Performing Fund Type	Oblig	Office	FY 1998	FY 1999	FY 2000	FY 2001	To		
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>& Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Complete</u>	
<u>Program</u>									
No Government Furnished Equipment									
Subtotal Product Development			962	1,148	1,198	1,056	cont.	cont.	
Subtotal Support and Management			60	70	90	78	cont.	cont.	
Subtotal Test and Evaluation			354	470	523	447	cont.	cont.	
Total Project			1,376	1,688	1,811	1,581	cont.	cont.	

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EXHIBIT R-2a FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604270N
PROGRAM ELEMENT TITLE: Electronic Warfare Development

PROJECT NUMBER: Z1742
PROJECT TITLE: Electronic Warfare
Technical Development and Testing

COST (\$ in Millions)	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	Cost to Complete	Total Cost
Total PE Cost	821	891	945	1005	1046	1083	1123	Cont	Cont
Project Z1742	821	891	945	1005	1046	1083	1123	Cont	Cont
Quantity of RDT&E Articles	Var	Cont	Cont						

(U) A. Mission Description and Budget Item Justification :

The program, referred to as "Skunkworks", establishes is an Electronic Warfare research and development group that builds rapid prototype exploit and attack systems. The group also conducts studies on future technologies that are potential projects for EW applications.

(U) Program Accomplishments and Plans:

1. FY 1999 Plan:

- (U) (.290) Begin development of Improved EW Pod.
- (U) (.445) Design and build Heliborne Jamming system.
- (U) (.090) Develop UAV Jamming payload.

2. FY 2000 Plan:

- (U) (.317) Test and evaluate EW Pod.
- (U) (.455) Test and evaluate Dragon Drone UAV Jammer.
- (U) (.119) Conduct technical study on Supersonic Pod.

3. FY 2001 Plan:

- (U) (.351) Develop and test EW Manpack Attack system.
- (U) (.485) Build prototype Supersonic Pod.
- (U) (.109) Develop VME based Airborne Jammer.

B. Program Change Summary:

	FY 1999	FY 2000	FY 2001
(U) FY 2000 President's Budget:	825	896	922
(U) Minor Pricing Adjustments	-4	-5	23
(U) FY 2001 President's Budget Submit:	821	891	945

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: This is a non ACAT program

E. Schedule Profile: One improved EW Pod will be delivered in Nov 99 and begin range testing and evaluation. The second pod will be delivered in FY00. The Dragon Drone UAV Electronic Attack payload will begin range testing with the USMC in Oct 99. The Heliborne Electronic Attack system will be delivered to the Army in Aug 99, and undergo flight certification and range testing.

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