

CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2002			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7					R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N					
COST (\$ in Millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007		Cost to Complete	Total Cost
Total PE Cost	15.156	16.979	22.052	23.073	30.182	30.685	31.296		CONT.	CONT.
MK48 ADCAP/F0366	15.156	16.979	22.052	23.073	30.182	30.685	31.296		CONT.	CONT.
Quantity of RDT&E Articles										

A. (U) Mission Description and Budget Item Justification: The MK 48 ADCAP (ADvanced CAPability) torpedo R&D program focuses on two specific areas near term: Torpedo Advanced Processor Builds (APBs) and wideband sonar capability. The Chief of Naval Operations continues to stress shallow water (less than 600 feet) as a critical operating area to counter third world diesel electric submarines. Torpedo testing in shallow water has demonstrated that in-service ADCAP has less than full capability in this difficult environment. However, this testing, in conjunction with laboratory simulation efforts, has shown that significant performance improvements can be made by implementing changes to weapon tactics and software algorithms. Development, implementation and testing of these changes is being accomplished under the Torpedo APB program.

(U) Countermeasure (CM) sophistication and availability on the open market directly affects ADCAP kill proficiency and its ability to counter rapidly evolving threats. The focus of the MK 48 ADCAP torpedo R&D program for FY01 and out has shifted from being primarily concentrated on Software Block Upgrade efforts towards coordinated hardware upgrades, rapid Commercial-Off-the-Shelf insertion, and Torpedo APBs to rapidly upgrade the ADCAP to counter evolving threats and maintain robust performance. The Common Broadband Advanced Sonar System (CBASS) program will develop and field a wideband sonar capable of identifying CMs and discriminating them from the target. CBASS will develop 22 test articles (2 test vehicles and 20 Engineering Development Models (EDMs)). CBASS met Milestone II requirements on 6 March 1998 and received MDA approval to proceed into EMD. Full rate production and IOC are scheduled for FY06. The intent of the CBASS program is to achieve improvements in shallow water torpedo performance over current (MK48 Mod 5) capability.

(U) The introduction of the Torpedo Technology Insertion in FY04 will provide for incremental torpedo improvements and upgrades (including the development and test of New Technology Concepts from the R&D community (6.2/6.3) and contractor Independent Research and Development (IR&D)). This approach will incorporate developmental testing of the Future Naval Capability (FNC) transitioning technologies for ADCAP upgrades and help to provide the foundation for Next Generation Torpedoes. These efforts will continue torpedo development investment at a lower cost and shorter term than traditional torpedo programs.

R-1 SHOPPING LIST - Item No. 189

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 1 of 8)

UNCLASSIFIED

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: February 2002
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FY 2001 ACCOMPLISHMENTS: - (U) (\$4.222) Torpedo Advanced Processor Build continued in order to address Software Block Upgrade IV OPEVAL results. Efforts included software coding, modeling and simulation of software releases (including development and validation of models) and engineering tests in water for evaluation of proposed maintenance release. Conducted validation of safety features for submarine crew safety. - (U) (\$0.100) Provided for COMOPTEVFOR trusted agent test support and data analysis. - (U) (\$10.834) Completed CBASS design development and fabrication of test vehicles. Continued development of advanced wideband algorithms, signal processing, and tactical software. Conducted Preliminary and Critical Design Reviews. Continued in-water testing to support algorithm development and initial software builds.		

R-1 SHOPPING LIST - Item No. 189

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 2 of 8)

UNCLASSIFIED

CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: February 2002
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7	R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N	
<p>FY 2002 PLANS:</p> <ul style="list-style-type: none">- (U) (\$4.499) Torpedo Advanced Processor Build efforts continue in order to address fleet identified performance priorities for MK48 ADCAP MODS. Efforts include software coding, modeling and simulation of software releases (including development and validation of models) and engineering tests in water for evaluation of proposed releases. Conduct validation of safety features for submarine crew safety.- (U) (\$0.100) Provide for COMOPTEVFOR trusted agent test analysis and model validation support.- (U) (\$12.380) Initiate fabrication of CBASS EDM hardware. Continue development of advanced wideband algorithms, signal processing, and tactical software. Continue integration of CBASS prototype hardware and software components and test equipment. Continue in-water testing to support algorithm development and initial software builds.		

R-1 SHOPPING LIST - Item No. 189

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 3 of 8)

UNCLASSIFIED

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2, RDT&E Budget Item Justification

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February 2002

APPROPRIATION/BUDGET ACTIVITY

RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7

R-1 ITEM NOMENCLATURE

MK48 ADCAP/0205632N

FY 2003 PLANS:

- (U) (\$9.198) Torpedo Advanced Processor Build efforts continue in order to address fleet identified performance priorities for MK48 ADCAP MODS and to address broadband sonar improvements. Efforts include software coding, modeling and simulation of software releases (including development and validation of models) and engineering tests in water for evaluation of proposed releases. Conduct Follow-On Test and Evaluation of MK48 ADCAP MODS per TEMP. Conduct validation of safety features for submarine crew safety.
- (U) (\$0.200) Provide for COMOPTEVFOR trusted agent test analysis and model validation support.
- (U) (\$8.654) Integration and delivery of CBASS EDM hardware. Continue development of advanced wideband algorithms, signal processing, and tactical software. Continue integration of CBASS prototype hardware and software components and test equipment. Continue in-water testing to support algorithm development and initial software builds.
- (U) (\$4.000) Conduct developmental testing of MK48 ADCAP Mod 6 in cold water, littoral environments. Efforts include torpedo preparations, modeling and simulation predictions, post-run analysis, and preparations for required submarine hit-shot certification analysis prior to exercise.

R-1 SHOPPING LIST - Item No. 189

Exhibit R-2, RDT&E Budget Item Justification

(Exhibit R-2, page 4 of 8)

UNCLASSIFIED

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: February 2002						
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE							
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7	MK48 ADCAP/0205632N							
B. (U) Program Change Summary:	FY 2001	FY 2002	FY 2003					
(U) FY 2002 President's Budget:	15.707	17.130						
(U) Appropriated Value:	15.853	17.130						
(U) Adjustments to FY 2001/2002 Appropriated Value/FY 2002 President's Budget:	-0.697	-0.151						
(U) FY 2003 PRES Budget Submit:	15.156	16.979	22.052					
Funding:								
FY01: Net reduction of -\$0.697M is due to -\$0.496M USN directed undistributed reduction and -\$0.201M SBIR reduction.								
FY02: Reduction of -\$0.151 is due to USN directed undistributed reduction.								
FY03: N/A								
Schedule: The CBASS program in-water test program has been extended one year to coincide with EDM fabrication and software development. This results in a one year extension of developmental testing, technical and operational testing. Operational Evaluation concludes in FY06.								
Technical: Due to technical design complexities and results from systems requirements review analysis, additional engineering efforts were required to support hardware and software development prior to commencement of in-water developmental testing with prototypes.								
C. Other Program Funding Summary (\$ in millions)								
	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete
MK48 ADCAP MODS (WPN/PE0204284N/BA-3/P-1 Item 322500)	42.882	42.031	62.124	68.324	91.941	89.012	77.298	CONT.
Sub. Tactical Warfare Systems (RDT&E/PE0603562N/BA-4/S1739)	4.172	9.323	11.601	6.763	6.818	6.918	7.033	
Advanced Submarine Systems (RDT&E/PE0603561N/BA4)	128.391	124.142	107.389	114.129	111.190	115.037	116.191	
D. (U) Acquisition Strategy: CBASS EMD contract was competitively awarded among qualified ADCAP producers.								

R-1 SHOPPING LIST - Item No. 189

Exhibit R-2, RDT&E Budget Item Justification

(Exhibit R-2, page 5 of 8)

UNCLASSIFIED

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2, RDT&E Budget Item Justification

DATE:

February 2002

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RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7

R-1 ITEM NOMENCLATURE

MK48 ADCAP/0205632N

E. Schedule Profile:

PROGRAM EFFORTS	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07
Torpedo Advanced Processor Builds	BLK IV OPEVAL ▼▲			ADCAP Mods DT/FOT&E ▽ ▲	ADCAP Performance Upgrades based on Fleet Priorities			
CBASS Development	▲		Engineering Tests in Support of CBASS Algorithm and Software Development			DT/OT OPEVAL ▽ ▲ ▽ ▲ ▽	▲ MSIII	
Torpedo Technology Insertion	▲ SDR	▲ PDR	▲ CDR		▲		Developmental Testing	▲

R-1 SHOPPING LIST - Item No. 189

Exhibit R-2, RDT&E Budget Item Justification

(Exhibit R-2, page 6 of 8)

UNCLASSIFIED

CLASSIFICATION:

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2002				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N/BA-7			MK48 ADCAP/0205632N			MK48 ADCAP/F0366						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NUWC Newport, RI	CONT.	0.485	10/00	0.184	10/01	0.069	10/02	CONT.	CONT.	N/A
Primary Hardware Development	C,CPFF	ARL/PSU State College, PA	CONT.	0.000		0.000		0.000		CONT.	CONT.	N/A
Primary Hardware Development	C,CPFF	Northrop Grumman	13.458	8.151	11/00	5.089	10/01	3.788	10/02	0.307	30.793	30.793
Ancillary Hardware Development											0.000	
Systems Engineering	WR	NUWC Newport, RI	CONT.	1.498	10/00	4.195	10/01	5.058	10/02	CONT.	CONT.	N/A
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			CONT.	10.134		9.468		8.915		CONT.	CONT.	
Remarks: Total Cost and Target Value of Contract represents contract Latest Revised Estimate based on completed alpha pricing negotiations and CBASS hardware technical requirements.												
Development Support Equipment											0.000	
Software Development	WR	NUWC Newport, RI	CONT.	1.559	10/00	3.393	10/01	4.033	10/02	CONT.	CONT.	N/A
Software Development	C,CPFF	ARL/PSU State College, PA	CONT.	0.150	11/00	0.350	10/01	0.450	10/02	CONT.	CONT.	N/A
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management												
Technical Data											0.000	
GFE											0.000	
Subtotal Support			CONT.	1.709		3.743		4.483		0.000	CONT.	
Remarks:												

R-1 SHOPPING LIST - Item No. 189

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 7 of 8)

UNCLASSIFIED

CLASSIFICATION:

UNCLASSIFIED

Exhibit R-3 Cost Analysis (page 2)										DATE: February 2002		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-7				PROGRAM ELEMENT MK48 ADCAP/0205632N			PROJECT NAME AND NUMBER MK48 ADCAP/F0366					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test & Evaluation	WR	NUWC Newport, RI	CONT.	1.156	10/00	1.706	10/01	5.168	10/02	CONT.	CONT.	N/A
Developmental	Various	Various	CONT.	0.231	11/00	0.100	10/01	0.200	10/02	CONT.	CONT.	N/A
Modeling & Simulation	WR	NUWC Newport, RI	CONT.	0.995	10/00	0.908	10/01	1.731	10/02	CONT.	CONT.	N/A
Modeling & Simulation	Various	Various	CONT.	0.619	11/00	0.650	10/01	0.900	10/02	CONT.	CONT.	N/A
GFE											0.000	
Subtotal T&E			CONT.	3.001		3.364		7.999		CONT.	CONT.	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	Various	Various	CONT.	0.272	MISC.	0.274	MISC.	0.500	MISC.	CONT.	CONT.	N/A
Travel				0.040		0.045		0.045		CONT.	CONT.	N/A
Labor (Research Personnel)											0.000	
Overhead				0.000		0.085		0.110		CONT.	CONT.	N/A
Subtotal Management			CONT.	0.312		0.404		0.655		CONT.	CONT.	
Remarks:												
Total Cost			CONT.	15.156		16.979		22.052		CONT.	CONT.	
Remarks:												

R-1 SHOPPING LIST - Item No. 189

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

UNCLASSIFIED