

CLASSIFICATION:

UNCLASSIFIED

| | | | | | | | | | | |
|---|---------------|---------------|---------------|--|--|--|--|--|--|--|
| EXHIBIT R-2, RDT&E Budget Item Justification | | | | | | DATE: June 2001 | | | | |
| APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7 | | | | | | R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N | | | | |
| COST (\$ in Millions) | FY 2000 | FY 2001 | FY 2002 | | | | | | | |
| Total PE Cost | 19.400 | 15.707 | 17.130 | | | | | | | |
| MK48 ADCAP/V0366/F0366 ¹ | 19.400 | 15.707 | 17.130 | | | | | | | |
| Quantity of RDT&E Articles | | | | | | | | | | |

Note¹: Due to realignment of Program Executive Office, FY2000 and FY2001 funds allocated under V0366 and FY2002 and beyond funds allocated under F0366 for display purposes.

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 23 test articles (2 test vehicles and 21 Engineering Development Models (EDMs)). CBASS met Milestone II requirements on 6 March 1998 and received MDA approval to proceed into EMD. The intent of the CBASS program is to acheive improvements in shallow water torpedo performance over current (MK48 Mod 5) capability.

(U) The introduction of the Stealth Torpedo Enhancement Program (STEP) will provide for incremental stealth 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. 192

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 1 of 7)

UNCLASSIFIED

CLASSIFICATION:

UNCLASSIFIED

| | | |
|---|--|---------------------------|
| EXHIBIT R-2, RDT&E Budget Item Justification | | DATE: June 2001 |
| APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7 | R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N | |
| <p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none">- (U) (\$6.023) Completed the development of G&C Software Block IV efforts in support of OT. Initiated Operational Evaluation of Software Block Upgrade IV. 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 releases. Conducted validation of safety features for submarine crew safety.- (U) (\$0.318) Provided for COMOPTEVFOR Software Block Upgrade IV test support.- (U) (\$12.849) Continued CBASS design development and fabrication of test vehicles. Continued development of advanced wideband algorithms, signal processing, and tactical software. Continued to develop of interim test equipment. Completed integration of test vehicles and software components. Began in-water testing to support algorithm development and initial software builds.- (U) (\$0.210) Continued to develop, design and prototype new propulsion concepts. Continue land-based testing of alternate fuels and reduced maintenance propulsion components. | | |

R-1 SHOPPING LIST - Item No. 192

Exhibit R-2, RDT&E Budget Item Justification

(Exhibit R-2, page 2 of 7)

UNCLASSIFIED

CLASSIFICATION:

UNCLASSIFIED

| | | |
|--|--|---------------------------|
| EXHIBIT R-2, RDT&E Budget Item Justification | | DATE: June 2001 |
| APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7 | R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N | |
| <p>FY 2001 PLANS:</p> <ul style="list-style-type: none">- (U) (\$4.642) Torpedo Advanced Processor Build begin in order to address Software Block Upgrade IV OPEVAL results. 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 maintenance release. Conduct validation of safety features for submarine crew safety.- (U) (\$0.100) Provide for COMOPTEVFOR trusted agent test support and data analysis.- (U) (\$10.764) Completed CBASS design development and fabrication of test vehicles. Continue development of advanced wideband algorithms, signal processing, and tactical software. Conduct Preliminary and Critical Design Reviews. Continue in-water testing to support algorithm development and initial software builds.- (U) (\$0.201) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638. | | |

R-1 SHOPPING LIST - Item No. 192

Exhibit R-2, RDT&E Budget Item Justification

(Exhibit R-2, page 3 of 7)

UNCLASSIFIED

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2, RDT&E Budget Item Justification

DATE:

June 2001

APPROPRIATION/BUDGET ACTIVITY

RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7

R-1 ITEM NOMENCLATURE

MK48 ADCAP/0205632N

FY 2002 PLANS:

- (U) (\$5.571) 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) (\$0.351) Provide for COMOPTEVFOR trusted agent test analysis and model validation support.
- (U) (\$11.208) Initiate fabrication 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.

R-1 SHOPPING LIST - Item No. 192

Exhibit R-2, RDT&E Budget Item Justification

(Exhibit R-2, page 4 of 7)

UNCLASSIFIED

| EXHIBIT R-2, RDT&E Budget Item Justification | | DATE: | |
|--|----------------------------|------------------|---------|
| | | June 2001 | |
| APPROPRIATION/BUDGET ACTIVITY | R-1 ITEM NOMENCLATURE | | |
| RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7 | MK48 ADCAP/0205632N | | |
| B. (U) Program Change Summary: | FY 2000 | FY 2001 | FY 2002 |
| (U) FY 2001 President's Budget: | 20.314 | 15.853 | 17.227 |
| (U) Appropriated Value: | 20.314 | 15.853 | |
| (U) Adjustments to FY2000/2001 Appropriated Value/ FY2001 President's Budget: | -0.914 | -0.146 | -0.048 |
| (U) FY 2002 PRES Budget Submit: | 19.400 | 15.707 | 17.130 |
| <p>Funding:</p> <p>FY00: Net reduction of -\$0.914M is due to -\$0.626M USN directed undistributed general reductions, \$.208M SBIR reduction, and a \$0.080M Congressional directed undistributed reduction.</p> <p>FY01: Net reduction of -\$0.146M is due to -\$0.111M Congressional directed undistributed reduction and -\$0.035M Government-Wide rescission.</p> <p>FY02: Net reduction of -\$0.048 is due to \$0.068M USN directed undistributed general increases and -\$0.116M Naval Working Capital Fund rate adjustment.</p> <p>Schedule: The CBASS program in-water test program has been extended six months to coincide with EDM fabrication and software development. This results in a one year extension of developmental testing, technical and operational testing.</p> <p>Technical: Due to unanticipated design complexities and results from trade study analysis, additional engineering tests are necessary to complete algorithm downselect and software development prior to commencement of in-water developmental testing with prototypes.</p> | | | |
| C. Other Program Funding Summary (\$ in millions) | | | |
| | FY 2000 | FY 2001 | FY 2002 |
| MK48 ADCAP MODS (WPN/PE0204284N/BA-3/P-1 Item 322500) | 44.966 | 43.523 | 42.386 |
| D. (U) Acquisition Strategy: CBASS EMD contract was competitively awarded among qualified ADCAP producers. | | | |

CLASSIFICATION:

UNCLASSIFIED

| | | | | | | | | | | | | |
|------------------------------------|--|--|----------------------------|--|--|-------------------------|------------------------|--|--|--|--|--|
| Exhibit R-3 Cost Analysis (page 1) | | | | | | | DATE: June 2001 | | | | | |
| APPROPRIATION/BUDGET ACTIVITY | | | PROGRAM ELEMENT | | | PROJECT NAME AND NUMBER | | | | | | |
| RDT&E, N/BA-7 | | | MK48 ADCAP/0205632N | | | MK48 ADCAP/V0366 | | | | | | |

| 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 | | | |
|--|------------------------------|--------------------------------------|-----------------------|---------------|------------------------|---------------|------------------------|---------------|------------------------|--|--|--|
| Primary Hardware Development | WR | NUWC Newport, RI | CONT. | 0.977 | 10/99 | 1.002 | 10/00 | 0.940 | 10/01 | | | |
| Primary Hardware Development | C,CPFF | ARL/PSU State College, PA | CONT. | 0.000 | | 0.000 | | 0.000 | | | | |
| Primary Hardware Development | C,CPFF | Northrop Grumman | 7.101 | 6.357 | 11/99 | 6.310 | 10/00 | 4.089 | 10/01 | | | |
| Ancillary Hardware Development | | | | | | | | | | | | |
| Systems Engineering | WR | NUWC Newport, RI | CONT. | 3.516 | 10/99 | 2.506 | 10/00 | 3.383 | 10/01 | | | |
| Licenses | | | | | | | | | | | | |
| Tooling | | | | | | | | | | | | |
| GFE | | | | | | | | | | | | |
| Award Fees | | | | | | | | | | | | |
| Subtotal Product Development | | | CONT. | 10.850 | | 9.818 | | 8.412 | | | | |

Remarks: Total Cost and Target Value of Contract represents adjusted Latest Revised Estimate (currently under negotiation) following completion of design trade studies.

| | | | | | | | | | | | | |
|-------------------------------|--------|---------------------------|-------|-------|-------|-------|-------|-------|-------|--|--|--|
| Development Support Equipment | | | | | | | | | | | | |
| Software Development | WR | NUWC Newport, RI | CONT. | 2.319 | 10/99 | 1.865 | 10/00 | 3.407 | 10/01 | | | |
| Software Development | C,CPFF | ARL/PSU State College, PA | CONT. | 0.415 | 11/99 | 0.250 | 10/00 | 0.450 | 10/01 | | | |
| Training Development | | | | | | | | | | | | |
| Integrated Logistics Support | | | | | | | | | | | | |
| Configuration Management | | | | | | | | | | | | |
| Technical Data | | | | | | | | | | | | |
| GFE | | | | | | | | | | | | |
| Subtotal Support | | | CONT. | 2.734 | | 2.115 | | 3.857 | | | | |

Remarks:

R-1 SHOPPING LIST - Item No. 192

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 6 of 7)

UNCLASSIFIED

CLASSIFICATION:

UNCLASSIFIED

| Exhibit R-3 Cost Analysis (page 2) | | | | | | | | DATE: June 2001 | | | | |
|--|------------------------------|--------------------------------------|---|---------------|------------------------|--|------------------------|------------------------|------------------------|--|--|--|
| APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-7 | | | PROGRAM ELEMENT MK48 ADCAP/0205632N | | | PROJECT NAME AND NUMBER MK48 ADCAP/V0366 | | | | | | |
| 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 | | | |
| Test & Evaluation | WR | NUWC Newport, RI | CONT. | 2.993 | 10/99 | 1.218 | 10/00 | 2.468 | 10/01 | | | |
| Developmental | Various | Various | CONT. | 0.608 | 11/99 | 0.296 | 10/00 | 0.351 | 10/01 | | | |
| Modeling & Simulation | WR | NUWC Newport, RI | CONT. | 1.542 | 10/99 | 1.449 | 10/00 | 1.132 | 10/01 | | | |
| Modeling & Simulation | C,CPFF | ARL/PSU State College, PA | CONT. | 0.499 | 11/99 | 0.519 | 10/00 | 0.505 | 10/01 | | | |
| GFE | | | | | | | | | | | | |
| Subtotal T&E | | | CONT. | 5.642 | | 3.482 | | 4.455 | | | | |
| Remarks: | | | | | | | | | | | | |
| Contractor Engineering Support | | | | | | | | | | | | |
| Government Engineering Support | | | | | | | | | | | | |
| Program Management Support | Various | Various | CONT. | 0.120 | MISC. | 0.272 | MISC. | 0.274 | MISC. | | | |
| Travel | | | | 0.054 | | 0.020 | | 0.045 | | | | |
| Labor (Research Personnel) | | | | | | | | | | | | |
| Overhead | | | | 0.000 | | 0.000 | | 0.086 | | | | |
| Subtotal Management | | | CONT. | 0.174 | | 0.292 | | 0.405 | | | | |
| Remarks: | | | | | | | | | | | | |
| Total Cost | | | CONT. | 19.400 | | 15.707 | | 17.130 | | | | |
| Remarks: | | | | | | | | | | | | |

R-1 SHOPPING LIST - Item No. 192

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

UNCLASSIFIED