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| ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit) | | | | | | | DATE February 2000 | | |
|--|---------------|------------------|-------------------|---|------------------|-----------------|---------------------------|------------------|------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | | | | PE NUMBER AND TITLE 0604820A Radar Development | | | | PROJECT DE10 | |
| COST (In Thousands) | FY1999 Actual | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY2004 Estimate | FY2005 Estimate | Cost to Complete | Total Cost |
| DE10 Sentinel | 6708 | 5089 | 8429 | 3639 | 0 | 0 | 0 | 0 | 159603 |
| <p>A. Mission Description and Budget Item Justification: The Sentinel, AN/MPQ-64, consists of a HMMWV towed radar-based sensor with its prime mover/power, identification friend or foe (IFF), and FAAD Command, Control, and Intelligence (C2I) interfaces. The sensor is an advanced three-dimensional battlefield X-Band air defense phased-array radar with an instrumented range of 40 km. The Sentinel is capable of operating day or night, in adverse weather conditions, in the battlefield environments of dust, smoke aerosols, and enemy countermeasures. It provides 360 degree azimuth coverage for acquisition tracking. The Sentinel contributes to the digital battlefield by automatically detecting, classifying, identifying, and reporting targets (cruise missiles, unmanned aerial vehicles, rotary wing and fixed wing aircraft). This Modernization Program will improve Sentinel's capability against evolving threats. The Modernization Program will provide increased capabilities for the Sentinel to keep abreast of the evolving technological threat of small radar cross-section targets such as cruise missiles and unmanned aerial vehicles.</p> <p>FY 1999 Accomplishments:</p> <ul style="list-style-type: none"> • 2299 Conducted Transmitter Prototype Design and Development • 4000 Passive Adjunct Sensor Development • 409 Conducted Waveform Prototype Design and Development <p>Total 6708</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 2437 Continue Transmitter Prototype Design and Development • 2515 Conduct Waveform Prototype Design and Development • 137 Small Business Innovation Research/Small Business Transfer (SBIR/STTR) Programs <p>Total 5089</p> <p>FY 2001 Planned Program:</p> <ul style="list-style-type: none"> • 1377 Complete Transmitter Prototype Design and Development • 4725 Complete Waveform Prototype Design and Development • 465 Integration and Test of Waveforms • 1862 Conduct Target Classification Prototype Design and Development <p>Total 8429</p> | | | | | | | | | |
| Project DE10 | | | Page 1 of 5 Pages | | | | Exhibit R-2 (PE 0604820A) | | |

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| B. Program Change Summary | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> |
|--|----------------|----------------|----------------|
| Previous President's Budget (<u>FY 2000/2001 PB</u>) | 6742 | 5128 | 8481 |
| Appropriated Value | 6786 | 5128 | |
| Adjustments to Appropriated Value | | | |
| a. Congressional General Reductions | -44 | | |
| b. SBIR / STTR | -178 | | |
| c. Omnibus or Other Above Threshold Reduction | | -21 | |
| d. Below Threshold Reprogramming | +170 | | |
| e. Rescissions | | -18 | |
| Adjustments to Budget Years Since <u>FY 2000/2001 PB</u> | -26 | | -52 |
| Current Budget Submit (<u>FY 2001 PB</u>) | 6708 | 5089 | 8429 |

| C. Other Program Funding Summary | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | <u>To Compl</u> | <u>Total Cost</u> |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------------|-----------------------|
| Other Procurement, Army 2 (SSN WK 5053) | 57475 | 48257 | 24188 | 28497 | 31882 | 34672 | 34635 | Continue | Continue |
| Other Procurement, Army 2 (SSN WK 5057) | | 0 | 0 | 5502 | 11312 | 16954 | 16936 | Continue | Continue |
| Spares (SSN BS 9732) | 5102 | 4334 | 1922 | 3192 | 678 | 3853 | 2806 | Continue | Continue |

D. Acquisition Strategy: The Modernization Program awarded a sole source CPAF contract to the production manufacturer. The effort will aggressively implement the tenets of Cost As Independent Variable (CAIV) to assure Total Ownership Costs of the Sentinel are reduced. The contractor will be incentivized to reduce both acquisition and operational support costs for the Sentinel program. The program will take advantage of already developed items and certain off the shelf technologies to minimize risk while insuring cost schedule and performance goals are achieved.

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| E. Schedule Profile | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Transmitter Initial Design | 2Q | | | | | | |
| Waveform Prototype Design | 2Q | | | | | | |
| Waveform Critical Design Review | | 2Q | | | | | |
| Transmitter Critical Design Review | | 2Q | | | | | |
| Passive Sensor Development | | 3Q | 1-4Q | | | | |
| Transmitter Test and Acceptance | | | 2Q | | | | |
| Waveform Test and Acceptance | | | 2Q | | | | |
| Target Classification Prototype Design | | | 2Q | | | | |
| Target Classification Test and Acceptance | | | | 1Q | | | |
| Integration Test | | | | 2Q | | | |

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| ARMY RDT&E COST ANALYSIS (R-3) | DATE February 2000 |
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| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE 0604820A Radar Development | PROJECT DE10 |
|--|---|-------------------------------|

| I. Product Development | Contract Method & Type | Performing Activity & Location | Total PYs 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 |
|---|------------------------|--|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a. System Development | C/FFP | Hughes Aircraft Co. Fullerton, CA | 56836 | | | | | | | | 56836 | 56836 |
| b. Technical requirement definition, corrective action & simulation | MIPR | Various AMCOM contractors/locations | 18704 | | | | | | | | 18704 | |
| c. Passive Sensor | MIPR | Various other agency contractors/locations | | 4000 | | | 3Q | | | | 4000 | |
| d. Misc requirements definition, ECM and survivability efforts. | MIPR | Various other agency contractors/locations | 5270 | | | | | | | | 5270 | |
| e. Modernization Developments | SS/CPAF | Raytheon Company El Segundo, CA | | 1902 | 2Q | 4094 | 2Q | 6334 | 2Q | 1362 | 13692 | 13769 |
| f. Misc Mod Developments | MIPR | Various other agency contractors/locations | | | | 168 | 2Q | 950 | 2Q | 200 | 1318 | |
| g. SBIR/STTR | Various | Various | | | | 137 | 2Q | | | | 137 | |
| Subtotal Product Development: | | | 80810 | 5902 | | 4399 | | 7284 | | 1562 | 99957 | |

| II. Support Costs | Contract Method & Type | Performing Activity & Location | Total PYs 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 |
|----------------------------------|------------------------|--------------------------------|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a. Program Support Services | MIPR | AMCOM Redstone Arsenal, AL | 9945 | 481 | 2Q | 327 | 2Q | 300 | 2Q | 200 | 11253 | |
| b. Other Agency Support Services | MIPR | Various | 1707 | 114 | 3Q | | | | | | 1821 | |
| Subtotal Support Costs: | | | 11652 | 595 | | 327 | | 300 | | 200 | 13074 | |

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ARMY RDT&E COST ANALYSIS (R-3)

DATE **February 2000**

BUDGET ACTIVITY
5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604820A Radar Development

PROJECT
DE10

| III. Test and Evaluation | Contract Method & Type | Performing Activity & Location | Total PYs 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 |
|--|------------------------|---|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a. IOT&E | MIPR | OPTEC Alexandria, VA | 24180 | | | | | | | | 24180 | |
| b. Other/Misc Test and Evaluation Activity | MIPR | Various | 7703 | | | | | | | | 7703 | |
| c. Technical Test | MIPR | Redstone Technical Test Center Redstone Arsenal, AL | 1213 | | | | | 425 | 2Q | 1500 | 3138 | |
| Subtotal Test and Evaluation: | | | 33096 | | | | | 425 | | 1500 | 35021 | |

| IV. Management Services | Contract Method & Type | Performing Activity & Location | Total PYs 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 |
|--|------------------------|--|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a. Product Manager Support | MIPR | PM Sentinel/AMCOM Redstone Arsenal, AL | 10180 | 146 | 2Q | 243 | 2Q | 299 | 2Q | 258 | 11126 | |
| b. Contractor Support to Product Manager | FP | Vista Tech, Huntsville, AL /TBD | | 65 | 2Q | 120 | 2Q | 121 | 2Q | 119 | 425 | |
| Subtotal Management Services: | | | 10180 | 211 | | 363 | | 420 | | 377 | 11551 | |

| | | | | | | | | | | | | |
|----------------------------|--|--|--------|------|--|------|--|------|--|------|--------|--|
| Project Total Cost: | | | 135738 | 6708 | | 5089 | | 8429 | | 3639 | 159603 | |
|----------------------------|--|--|--------|------|--|------|--|------|--|------|--------|--|