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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)        |                   |                     |                     |  |                     |                     |                     |                     | DATE<br>February, 1995 |            |
|--|-------------------|---------------------|---------------------|--|---------------------|---------------------|---------------------|---------------------|------------------------|------------|
| BUDGET ACTIVITY<br><b>4 - Demonstration And Validation</b> |                   |                     |                     | PE NUMBER AND TITLE<br><b>0603441F Space Based InfraRed (SBIR)<br/>Dem/Val</b> |                     |                     |                     |                     |                        |            |
| COST (In Thousands)  | FY 1994<br>Actual | FY 1995<br>Estimate | FY 1996<br>Estimate | FY 1997<br>Estimate  | FY 1998<br>Estimate | FY 1999<br>Estimate | FY 2000<br>Estimate | FY 2001<br>Estimate | Cost to<br>Complete    | Total Cost |
| Total Program Element (PE) Cost                            | 0                 | 111,838             | 130,744             | 126,369  | 127,367             | 144,283             | 119,390             | 119,363             | Continuing             | TBD        |
| 0007 Space & Missile Tracking System                       | 0                 | 106,838             | 114,824             | 119,404  | 124,382             | 144,283             | 119,390             | 119,363             | Continuing             | TBD        |
| 0008 Cobra Brass   | 0                 | 5,000               | 15,920              | 6,965  | 2,985               | 0                   | 0                   | 0                   | 0                      | 30,870     |

  

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

(U) The purpose of the Space Based InfraRed System (SBIRS) program is to develop a system which provides increased performance over the existing Defense Support Program (DSP) system. The system's primary mission is to provide initial warning of a ballistic missile attack on the US. SBIRS will incorporate new technologies that would enhance detection, provide direct reporting of ICBM/SLBM and tactical ballistic missile launches, and provide critical mid-course tracking and discrimination data for national and theater missile defense. The integrated system architecture consists of sensors located in Geosynchronous Orbits (GEO), Highly Elliptical Orbits (HEO) and Low Earth Orbits (LEO) and an integrated, centralized ground station serving all space elements of the SBIR System, as well as DSP. PE #604441F funds SBIRS Engineering and Manufacturing Development activities.

(U) This PE funds the SBIRS Development activities: Space and Missile Tracking System (SMTS) and Cobra Brass (CB). SMTS (formerly Brilliant Eyes) is the Dem/Val effort for the LEO component of SBIRS, CB will provide data for the GEO and HEO components. This program is in the demonstration and validation Budget Activity Research Category because it funds the risk reduction and an advanced technology demonstration system.

**(U) Acquisition Strategy:**

(U) The SBIRS program is managed through a single consolidated System Program Office (SPO) at the Space and Missile Systems Center, Los Angeles Air Force Base, CA. The SMTS Flight Demonstration System (FDS) acquisition plan was approved in Aug 92. The Flight Demonstration System (FDS) contract is scheduled to be awarded in 1995, and the two FDS satellites are scheduled to be launched into a low earth orbit by 4Q FY98.

(U) CB is currently being developed by Sandia National Laboratory, Albuquerque, NM. CB is planning to launch in FY98.

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| <b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2)</b>   |                |  |                | DATE<br><b>February, 1995</b> |                       |
| <b>Exhibit</b><br>EMD ACTIVITY<br><b>4 - Demonstration And Validation</b>  |                | PE NUMBER AND TITLE<br><b>0603441F Space Based InfraRed (SBIR)<br/>Dem/Val</b> |                |                               |                       |
| <br><b>(U) B. <u>Program Change Summary (\$ in Thousands)</u></b>  |                |  |                |                               |                       |
|  | <u>FY 1994</u> | <u>FY 1995</u>   | <u>FY 1996</u> | <u>FY 1997</u>                | <u>Total<br/>Cost</u> |
| (U) Previous President's Budget  |                | 125,000  | 180,000        | 150,000                       | Continuing            |
| (U) Appropriated Value   |                | 117,000  |                |                               |                       |
| (U) Adjustments to Appropriated Value  |                |  |                |                               |                       |
| a. Cong Gen Reductions   |                | - 2,968  |                |                               |                       |
| b. SBIR  |                | - 2,165  |                |                               |                       |
| c. Omnibus or Other Above Threshold Reprogram  |                |  |                |                               |                       |
| d. Below Threshold Reprogramming   |                | - 29   |                |                               |                       |
| (U) Adjustments to Budget Years Since FY95 PB  |                |  | - 49,256       | - 23,631                      |                       |
| (U) Current Budget Submit/President's Budget   |                | 111,838  | 130,744        | 126,369                       | Continuing            |
| <br><b>(U) Change Summary Explanation:</b>   |                |  |                |                               |                       |
| Funding: Adjustments to Budget Years Since FY95 PB in FY96 and FY97 reflect a decrease (\$180,000,000 in FY96, \$150,000,000 in FY97) due to the transfer of Project 3616 to PE #604441F, an increase (\$131,400,000 in FY96, \$127,000,000 in FY97) due to the combination of SBIRS Development activities, and a decrease (\$656,000 in FY96, \$631,000 in FY97) due to inflation changes. |                |  |                |                               |                       |
| Schedule: No Changes.  |                |  |                |                               |                       |
| Technical: No Changes.   |                |  |                |                               |                       |
| <br><b>(U) C. <u>Other Program Funding Summary (\$ in Thousands)</u></b>   |                |  |                |                               |                       |
| Not Applicable.  |                |  |                |                               |                       |
| <b><u>Related RDT&amp;E:</u></b>   |                |  |                |                               |                       |
| (U) PE #604441F - Space Based InfraRed System (SBIRS) - EMD  |                |  |                |                               |                       |
| (U) PE #305911F - Defense Support Program (DSP)  |                |  |                |                               |                       |
| (U) PE #603871C - Advanced Tech. Dev. - National Missile Defense   |                |  |                |                               |                       |
| (U) PE #604856C - Patriot PAC-3 EMD  |                |  |                |                               |                       |
| (U) PE #603861C - THAAD Dem/Val  |                |  |                |                               |                       |

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| <b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2)</b>  |   |                |   |   | DATE <b>February, 1995</b>                              |   |                |   |   |   |   |                |   |   |   |   |                |  |  |
| <b>Exhibit</b> PE NUMBER AND TITLE  |   |                |   |   |   |   |                |   |   |   |   |                |   |   |   |   |                |  |  |
| <b>4 - Demonstration And Validation</b>   |   |                |   |   | <b>0603441F Space Based InfraRed (SBIR)<br/>Dem/Val</b> |   |                |   |   |   |   |                |   |   |   |   |                |  |  |
| (U) PE #603867C - Navy Lower Tier Development<br>(U) PE #603868C - Navy Upper Tier Development<br><br>(U) <b>D. <u>Schedule Profile</u></b> |   |                |   |   |   |   |                |   |   |   |   |                |   |   |   |   |                |  |  |
|   |   | <u>FY 1994</u> |   |   |   |   | <u>FY 1995</u> |   |   |   |   | <u>FY 1996</u> |   |   |   |   | <u>FY 1997</u> |  |  |
|   | 1 | 2              | 3 | 4 | 1   | 2 | 3              | 4 | 1 | 2 | 3 | 4              | 1 | 2 | 3 | 4 |                |  |  |
| (U) SBIRS Pre-EMD Review  |   |                |   |   |   | X |                |   |   |   |   |                |   |   |   |   |                |  |  |
| (U) SMTS FDS Authority To Proceed   |   |                |   |   |   | X |                |   |   |   |   |                |   |   |   |   |                |  |  |
| (U) SMTS FDS Preliminary Design Review (PDR)  |   |                |   |   |   |   |                | X |   |   |   |                |   |   |   |   |                |  |  |
| (U) SMTS FDS Critical Design Review (CDR)   |   |                |   |   |   |   |                |   |   | X |   |                |   |   |   |   |                |  |  |
| (U) Cobra Brass Launch (FY98)   |   |                |   |   |   |   |                |   |   |   |   |                |   |   |   |   |                |  |  |
| (U) SMTS FDS Launch (4Q FY98)   |   |                |   |   |   |   |                |   |   |   |   |                |   |   |   |   |                |  |  |

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| <b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>   |                   |                     |  |                     |                     |                     |                     |                     | DATE<br><b>February, 1995</b> |            |
|--|-------------------|---------------------|--|---------------------|---------------------|---------------------|---------------------|---------------------|-------------------------------|------------|
| BUDGET ACTIVITY<br><b>4 - Demonstration And Validation</b>   |                   |                     | PE NUMBER AND TITLE<br><b>0603441F Space Based InfraRed (SBIR)<br/>Dem/Val</b> |                     |                     |                     |                     |                     | PROJECT<br><b>0007</b>        |            |
| COST (In Thousands)  | FY 1994<br>Actual | FY 1995<br>Estimate | FY 1996<br>Estimate  | FY 1997<br>Estimate | FY 1998<br>Estimate | FY 1999<br>Estimate | FY 2000<br>Estimate | FY 2001<br>Estimate | Cost to<br>Complete           | Total Cost |
| 0007 Space & Missile Tracking System   | 0                 | 106,838             | 114,824  | 119,404             | 124,382             | 144,283             | 119,390             | 119,363             | Continuing                    | TBD        |
| <p><b>(U) A. <u>Mission Description and Budget Item Justification</u></b></p> <p>(U) The Space and Missile Tracking System (SMTS), formerly known as Brilliant Eyes, represents the Low Earth Orbit (LEO) component of the Space Based InfraRed System (SBIRS). The objective SMTS constellation of low-earth orbiting satellites will provide global, below- and above-the-horizon access to strategic and tactical ballistic missiles in boost, post-boost, and midcourse phases of flight, and also track missile targets during reentry. SMTS will support the four SBIRS mission areas of Missile Warning, Missile Defense, Technical Intelligence, and Battle Space Characterization.</p> <p>(U) Prior to FY94, the Ballistic Missile Defense Organization (BMDO) funded SMTS (then Brilliant Eyes) with PE #603217C. In FY94, management and funding responsibility of the Brilliant Eyes program was transferred to the Air Force. FY94 funding for Brilliant Eyes (\$136,919) was provided in PE #603440F.</p> <p>(U) <u>FY 1994</u> (\$136,919: Accomplished with funding in PE #603440F)</p> <ul style="list-style-type: none"> <li>- (U) Restructured SMTS FDS Request For Proposals (RFP) Development</li> <li>- (U) Continued life testing 60 Kelvin cryocoolers</li> <li>- (U) Demonstrated focal plane arrays, processors, and 60 GHz communications components</li> <li>- (U) Completed Anti-Ballistic Missile (ABM) Treaty compliance review (Apr 94)</li> <li>- (U) Amended SMTS FDS RFP for downselect (Dec 94)</li> </ul> <p>(U) <u>FY 1995</u></p> <ul style="list-style-type: none"> <li>- (U) Award SMTS FDS supplemental agreement for space and ground segment development (Mar 95)</li> <li>- (U) Continue design &amp; develop of the FDS satellite and ground segment (\$62,096)</li> <li>- (U) Non-flying contractor conduct ground experiments (\$2,917)</li> <li>- (U) Program office activities (\$11,004)</li> <li>- (U) Complete ABM Treaty compliance review (Mar 95)</li> <li>- (U) Continue technology efforts in cryocoolers, focal plane arrays and 32 bit RAD hard processors (\$7,500)</li> <li>- (U) Simulation, Discrimination, and computer support (\$15,464)</li> </ul> |                   |                     |  |                     |                     |                     |                     |                     |                               |            |
| <i>Page 4 of 12 Pages</i>  |                   |                     |  |                     |                     | Exhibit R-2         |                     |                     |                               |            |

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)   |                        | DATE                  |
|---|------------------------|-----------------------|
| <b>Exhibit</b><br><b>4 - Demonstration And Validation</b>   |                        | <b>February, 1995</b> |
| PE NUMBER AND TITLE<br><b>0603441F Space Based InfraRed (SBIR)<br/>                 Dem/Val</b>   | PROJECT<br><b>0007</b> |                       |
| <ul style="list-style-type: none"> <li>- (U) Data Analysis for Midcourse Space Experiment (MSX) and Support for RAMOS (\$7,857)</li> <li>- (U) Conduct Preliminary Design Review (PDR) (Sep 95)</li> <br/> <li>(U) <u>FY 1996</u></li> <li>- (U) Continue SMTS FDS satellite and ground segment development (\$85,501)</li> <li>- (U) Continue work for non-flying contractor (\$5,000)</li> <li>- (U) Program office activities (\$13,523)</li> <li>- (U) Simulation, Discrimination, and computer support (\$10,800)</li> <li>- (U) Conduct Critical Design Review (CDR) (Sep 96)</li> <br/> <li>(U) <u>FY 1997</u></li> <li>- (U) Continue SMTS FDS satellite and ground segment development (\$91,732)</li> <li>- (U) Continue work for non-flying contractor (\$5,000)</li> <li>- (U) Program office activities (\$13,522)</li> <li>- (U) Simulation, Discrimination, and computer support (\$9,150)</li> <br/> <li>(U) <b>Acquisition Strategy:</b></li> <li>(U) The GEO component of the SBIRS program is a pilot for acquisition streamlining. For the GEO component the traditional Defense Acquisition Board (DAB) documentation for an ACAT ID program is being consolidated into a Single Acquisition and Management Plan (SAMP).</li> <br/> <li>(U) While SMTS and Cobra Brass are part of the overall SBIRS, there are on going contracts for each of these efforts. The SMTS Flight Demonstration System (FDS) acquisition plan was approved in Aug 92. The streamlined acquisition program established by the SBIRS GEO component pre-EMD phase will be used by SMTS when it enters EMD, after a successful deployment decision in FY00.</li> <br/> <li>(U) The developing organization for the SMTS FDS satellites is the Air Force Space and Missile Center, Los Angeles AFB, CA. An FDS flyer contract will be awarded to a single contractor who will design and build two FDS satellites to be launched in 4Q FY98. Major contractors competing for the FDS flyer contract are Rockwell International, Space Systems Division, Downey, CA and TRW, Redondo Beach, CA. An FDS non-flyer contract will also be awarded. There is a two year test period leading up an FY00 DoD deployment decision for an operational SMTS constellation for SBIRS. The non-flyer will participate with the FDS flying contractor in ground experiments to mitigate overall program technical risk as well as to maintain competition.</li> <br/> <li>(U) Pre-EMD activities would begin in late FY99 with approximately three pre-EMD study contracts. The purpose of pre-EMD would be to develop specifications and designs for the objective SMTS. This period would also be used to re-optimize the SBIRS HEO, GEO, LEO constellations, and to revalidate</li> </ul> |                        |                       |

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| <b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2)</b>   |                |   |                | DATE<br><b>February, 1995</b> |                        |   |                |   |   |                |   |   |
| <b>4 - Demonstration And Validation</b>  |                | <b>0603441F Space Based InfraRed (SBIR)</b> |                |                               | PROJECT<br><b>0007</b> |   |                |   |   |                |   |   |
| <p>the AFSPACECOM Operational Requirements Document. If a decision is made to deploy an operational SMTS in FY00, then the pre-EMD contractors would compete for the EMD contract - to be awarded in FY02. The same streamlined acquisition approach being used currently for the GEO EMD would be used as a baseline for the LEO EMD as well.</p> |                |   |                |                               |                        |   |                |   |   |                |   |   |
| <b>(U) B. Program Change Summary (\$ in Thousands)</b>   |                |   |                |                               |                        |   |                |   |   |                |   |   |
|  | <u>FY 1995</u> | <u>FY 1996</u>                              | <u>FY 1997</u> | <u>Total</u>                  |                        |   |                |   |   |                |   |   |
|  | <u>Cost</u>    |   |                |                               |                        |   |                |   |   |                |   |   |
| (U) Previous President's Budget  | 0              | 0   | 0              | 0                             |                        |   |                |   |   |                |   |   |
| (U) Appropriated Value   | 112,000        |   |                |                               |                        |   |                |   |   |                |   |   |
| (U) Adjustments to Appropriated Value  |                |   |                |                               |                        |   |                |   |   |                |   |   |
| a. Cong Gen Reductions   | - 2,968        |   |                |                               |                        |   |                |   |   |                |   |   |
| b. SBIR  | - 2,165        |   |                |                               |                        |   |                |   |   |                |   |   |
| c. Omnibus or Other Above Threshold Reprogram  |                |   |                |                               |                        |   |                |   |   |                |   |   |
| d. Below Threshold Reprogramming   | - 29           |   |                |                               |                        |   |                |   |   |                |   |   |
| (U) Adjustments to Budget Years Since FY95 PB  |                | + 114,824                                   | + 119,404      |                               |                        |   |                |   |   |                |   |   |
| (U) Current Budget Submit/President's Budget   | 106,838        | 114,824                                     | 119,404        | Continuing                    |                        |   |                |   |   |                |   |   |
| <br>(U) Change Summary Explanation:  |                |   |                |                               |                        |   |                |   |   |                |   |   |
| Funding: Project 0007 was created in FY94 under PE 63440F. In FY 95 the Project 0007 was moved to this PE. Adjustments to Budget Year Since FY95 PB reflects an increase for SMTS FDS which was transferred from BMDO to the Air Force.  |                |   |                |                               |                        |   |                |   |   |                |   |   |
| Schedule: Not Applicable.  |                |   |                |                               |                        |   |                |   |   |                |   |   |
| Technical: Not Applicable.   |                |   |                |                               |                        |   |                |   |   |                |   |   |
| <br>(U) C. Other Program Funding Summary (\$ in Thousands)   |                |   |                |                               |                        |   |                |   |   |                |   |   |
| Not Applicable.  |                |   |                |                               |                        |   |                |   |   |                |   |   |
| <br>(U) D. Schedule Profile  |                |   |                |                               |                        |   |                |   |   |                |   |   |
|  | <u>FY 1994</u> |   |                | <u>FY 1995</u>                |                        |   | <u>FY 1996</u> |   |   | <u>FY 1997</u> |   |   |
|  | 1              | 2   | 3              | 4                             | 1                      | 2 | 3              | 4 | 1 | 2              | 3 | 4 |



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| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)                                  |   |                          |                         |                    |                        | DATE February, 1995                                     |                |                |                |                    |               |
|---|---|--------------------------|-------------------------|--------------------|------------------------|---|----------------|----------------|----------------|--------------------|---------------|
| BUDGET ACTIVITY   |   |                          |                         |                    |                        | PE NUMBER AND TITLE                                     |                |                |                |                    |               |
| <b>4 - Demonstration And Validation</b>   |   |                          |                         |                    |                        | <b>0603441F Space Based InfraRed (SBIR)<br/>Dem/Val</b> |                |                |                |                    |               |
| <b>PROJECT</b>  |   |                          |                         |                    |                        | <b>0007</b>   |                |                |                |                    |               |
| <b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>                              |   |                          |                         |                    |                        |   |                |                |                |                    |               |
|   |   |                          |                         |                    |                        | <u>FY 1994</u>  | <u>FY 1995</u> | <u>FY 1996</u> | <u>FY 1997</u> |                    |               |
| (U)   | FDS satellite and ground segment            |                          |                         |                    |                        |   | 62,096         | 85,501         | 91,732         |                    |               |
| (U)   | Non-flying contractor ()                    |                          |                         |                    |                        |   | 2,917          | 5,000          | 5,000          |                    |               |
| (U)   | Program office activities ()                |                          |                         |                    |                        |   | 11,004         | 13,523         | 13,522         |                    |               |
| (U)   | Technology efforts ()                       |                          |                         |                    |                        |   | 7,500          | 0              | 0              |                    |               |
| (U)   | Sim., Discrim., & computer support ()       |                          |                         |                    |                        |   | 15,464         | 10,800         | 9,150          |                    |               |
| (U)   | Data Analysis for MSX and Support for RAMOS |                          |                         |                    |                        |   | 7,857          | 0              | 0              |                    |               |
| (U)   | Total                                       |                          |                         |                    |                        |   | 106,838        | 114,824        | 119,404        |                    |               |
| Note: FY94 Accomplished with funds from PE #603440F                                 |   |                          |                         |                    |                        |   |                |                |                |                    |               |
| <b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b> |   |                          |                         |                    |                        |   |                |                |                |                    |               |
| <b>Performing Organizations:</b>  |   |                          |                         |                    |                        |   |                |                |                |                    |               |
| Contractor or Government  | Contract Method/Type or Funding Vehicle     | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1994 | Budget FY 1994  | Budget FY 1995 | Budget FY 1996 | Budget FY 1997 | Budget to Complete | Total Program |
| <u>Product Development Organizations</u>  |   |                          |                         |                    |                        |   |                |                |                |                    |               |
| FDS Contract  | CPAF  | TBD                      | TBD                     | TBD                | See Note               | See Note  | 62,096         | 85,501         | 91,732         | Continued          | TBD           |
| Misc.   | Various                                     | Various                  | Continued               | Continued          | See Note               | See Note  | 36,179         | 29,323         | 27,672         | Continued          | TBD           |
| Note: FY94 Accomplished with funds from PE 603440F                                  |   |                          |                         |                    |                        |   |                |                |                |                    |               |
| <u>Support and Management Organizations</u>   |   |                          |                         |                    |                        |   |                |                |                |                    |               |
| Aerospace   |   | Various                  | Continued               | Continued          | See Note               | See Note  | 8,563          | 8,563          | 8,563          | Continued          | TBD           |
| <u>Test and Evaluation Organizations</u>  |   |                          |                         |                    |                        |   |                |                |                |                    |               |

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| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)  |   |                                |                               |                          |   |                   |                   |                   |                   | DATE<br>February, 1995 |                  |
|---|---|--------------------------------|-------------------------------|--------------------------|---|-------------------|-------------------|-------------------|-------------------|------------------------|------------------|
| BUDGET ACTIVITY   |   |                                |                               |                          | PE NUMBER AND TITLE                                     |                   |                   |                   |                   | PROJECT                |                  |
| <b>4 - Demonstration And Validation</b>   |   |                                |                               |                          | <b>0603441F Space Based InfraRed (SBIR)<br/>Dem/Val</b> |                   |                   |                   |                   | <b>0007</b>            |                  |
| Contractor or<br>Government<br>Performing<br>Activity<br>Not Applicable                       | Contract<br>Method/Typ<br>e or Funding<br>Vehicle | Award or<br>Obligation<br>Date | Performing<br>Activity<br>EAC | Project<br>Office<br>EAC | Total<br>Prior to<br>FY 1994                            | Budget<br>FY 1994 | Budget<br>FY 1995 | Budget<br>FY 1996 | Budget<br>FY 1997 | Budget to<br>Complete  | Total<br>Program |
| <b>(U) B. Budget Acquisition History and Planning Information Continued (\$ in Thousands)</b> |   |                                |                               |                          |   |                   |                   |                   |                   |                        |                  |
| <b>Government Furnished Property:</b> Not Applicable.   |   |                                |                               |                          |   |                   |                   |                   |                   |                        |                  |
| Subtotal Product Development  |   |                                |                               |                          | See Note  | See Note          | 98,275            |                   |                   | Continued              | TBD              |
| Subtotal Support and Management   |   |                                |                               |                          | See Note  | See Note          | 8,563             | 8,563             | 8,563             | Continued              | TBD              |
| Subtotal Test and Evaluation (Not Applicable)   |   |                                |                               |                          |   |                   |                   |                   |                   |                        |                  |
| Total Project   |   |                                |                               |                          | See Note  | See Note          | 106,838           | 114,824           | 119,404           | Continued              | TBD              |
| Note: FY94 Accomplished with funds from PE 603440F  |   |                                |                               |                          |   |                   |                   |                   |                   |                        |                  |

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)   |                   |                     |  |                     |                     |                     |                     |                     | DATE<br>February, 1995 |            |
|---|-------------------|---------------------|--|---------------------|---------------------|---------------------|---------------------|---------------------|------------------------|------------|
| BUDGET ACTIVITY<br><b>4 - Demonstration And Validation</b>  |                   |                     | PE NUMBER AND TITLE<br><b>0603441F Space Based InfraRed (SBIR)<br/>Dem/Val</b> |                     |                     |                     |                     |                     | PROJECT<br><b>0008</b> |            |
| COST (In Thousands)   | FY 1994<br>Actual | FY 1995<br>Estimate | FY 1996<br>Estimate  | FY 1997<br>Estimate | FY 1998<br>Estimate | FY 1999<br>Estimate | FY 2000<br>Estimate | FY 2001<br>Estimate | Cost to<br>Complete    | Total Cost |
| 0008 Cobra Brass  | 0                 | 5,000               | 15,920   | 6,965               | 2,985               | 0                   | 0                   | 0                   | 0                      | 30,870     |
| <p><b>(U) A. Mission Description and Budget Item Justification</b></p> <p>(U) The Cobra Brass (CB) Program is a DIA/CMO (Central MASINT Office) Research and Development program to explore the utility of staring, fast framing, multi-spectral electro-optical sensors. This approach represents a significant departure from the traditional approach of scanning, slow framing, single band sensors which have traditionally been used for Tactical Warning and Attack Assessment (TW/AA).</p> <p>(U) Previous CB sensors have demonstrated the ability of this technology to contribute to both the Theater Missile Defense (TMD), Technical Intelligence (TI), and Battlespace Characterization (BC) missions. A major emphasis of this program will be to increase the timeliness of sensor tasking and reporting. This will allow CB data to be processed in real-time through the existing theater infrastructure. CB will support the GEO and HEO component of the SBIRS.</p> <p>(U) <u>FY 1995</u></p> <ul style="list-style-type: none"> <li>- (U) System Concept Review (Feb 95)</li> <li>- (U) Payload Design Review (\$500)</li> <li>- (U) Ground Station Design Review (\$3,500)</li> <li>- (U) Test Unit (\$1,000)</li> </ul> <p>(U) <u>FY 1996</u></p> <ul style="list-style-type: none"> <li>- (U) Payload (\$10,320)</li> <li>- (U) Test Unit (\$1,000)</li> <li>- (U) Ground Station Build 1 (\$4,100)</li> <li>- (U) Satellite (I&amp;CO) (\$500)</li> </ul> <p>(U) <u>FY 1997</u></p> <ul style="list-style-type: none"> <li>- (U) Payload (\$2,400)</li> <li>- (U) Satellite Inspection &amp; Checkout (\$1,500)</li> <li>- (U) Payload delivered (Dec 96)</li> <li>- (U) Ground Station Build 1 &amp; 2 (\$3,065)</li> </ul> |                   |                     |  |                     |                     |                     |                     |                     |                        |            |
| <i>Page 9 of 12 Pages</i>   |                   |                     |  |                     |                     | Exhibit R-2         |                     |                     |                        |            |

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)   |                |                |   |                | DATE           |
|---|----------------|----------------|---|----------------|----------------|
|   |                |                |   |                | February, 1995 |
| <b>Exhibit</b> ELEMENT  |                |                | PE NUMBER AND TITLE                         |                | PROJECT        |
| <b>4 - Demonstration And Validation</b>   |                |                | <b>0603441F Space Based InfraRed (SBIR)</b> |                | <b>0008</b>    |
|   |                |                | <b>Dem/Val</b>                              |                |                |
| - (U) Ground Station testing complete (Mar 97)  |                |                |   |                |                |
| <b>(U) B. Program Change Summary (\$ in Thousands)</b>  |                |                |   |                |                |
|   | <u>FY 1994</u> | <u>FY 1995</u> | <u>FY 1996</u>                              | <u>FY 1997</u> | <u>Total</u>   |
|   | <u>Cost</u>    |                |   |                | <u>Cost</u>    |
| (U) Previous President's Budget   | 0              | 0              | 0   | 0              | 0              |
| (U) Appropriated Value  |                | 5,000          |   |                |                |
| (U) Adjustments to Appropriated Value   |                |                |   |                |                |
| a. Cong Gen Reductions  |                |                |   |                |                |
| b. SBIR   |                |                |   |                |                |
| c. Omnibus or Other Above Threshold Reprogram   |                |                |   |                |                |
| d. Below Threshold Reprogramming  |                |                |   |                |                |
| (U) Adjustments to Budget Years Since FY95 PB   |                |                | + 15,920                                    | + 6,965        |                |
| (U) Current Budget Submit/President's Budget  | 0              | 5,000          | 15,920                                      | 6,965          | Continuing     |
| (U) Change Summary Explanation:<br>Funding: Project 0008 was established in FY94 under this Program Element. Adjustments to Budget Year Since FY95 PB reflects an increase for Cobra Brass which was transferred to this Program Element. |                |                |   |                |                |
| Schedule: Not Applicable.   |                |                |   |                |                |
| Technical: Not Applicable.  |                |                |   |                |                |
| <b>(U) C. Other Program Funding Summary (\$ in Thousands)</b><br>Not Applicable.  |                |                |   |                |                |
| <b>(U) D. Schedule Profile</b>  |                |                |   |                |                |
|   | <u>FY 1994</u> |                | <u>FY 1995</u>                              |                | <u>FY 1996</u> |
|   | 1              | 2              | 3   | 4              | 1              |
|   |                | 2              | 3   | 4              | 1              |
|   |                |                | 2   | 3              | 4              |
|   |                |                |   | 2              | 3              |
|   |                |                |   |                | 2              |
|   |                |                |   |                | 3              |
|   |                |                |   |                | 4              |
| (U) System Concept Review   |                |                | X   |                |                |
| (U) Payload Design Review   |                |                |   | X              |                |
| (U) Ground Station Design Review  |                |                |   | X              |                |
| (U) Payload Consent to Ship Decision  |                |                |   | X              |                |



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| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)                                  |   |                          |                         |                    | DATE                   |                |
|---|---|--------------------------|-------------------------|--------------------|------------------------|----------------|
| BUDGET ACTIVITY   |   |                          |                         |                    | PROJECT                |                |
| <b>4 - Demonstration And Validation</b>   |   |                          |                         |                    | <b>0008</b>            |                |
| PE NUMBER AND TITLE   |   |                          |                         |                    |                        |                |
| <b>0603441F Space Based InfraRed (SBIR)</b>   |   |                          |                         |                    |                        |                |
| <b>Dem/Val</b>  |   |                          |                         |                    |                        |                |
| <b>(U) A. Project Cost Breakdown (\$ in Thousands)</b>                              |   |                          |                         |                    |                        |                |
|   |   | <u>FY 1994</u>           | <u>FY 1995</u>          | <u>FY 1996</u>     | <u>FY 1997</u>         |                |
| (U) Payload   |   | 0                        | 500                     | 10,320             | 2,400                  |                |
| (U) Ground Station  |   | 0                        | 3,500                   | 4,100              | 3,065                  |                |
| (U) Test Unit   |   | 0                        | 1,000                   | 1,000              | 0                      |                |
| (U) Satellite I&CO  |   | 0                        | 0                       | \$500              | 1,500                  |                |
| (U) Total   |   | 0                        | 5,000                   | 15,920             | 6,965                  |                |
| <b>(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)</b> |   |                          |                         |                    |                        |                |
| <b>Performing Organizations:</b>  |   |                          |                         |                    |                        |                |
| Contractor or Government  | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1994 | Total Program  |
|   |   |                          |                         |                    | Budget FY 1994         | Budget FY 1995 |
|   |   |                          |                         |                    | Budget FY 1996         | Budget FY 1997 |
|   |   |                          |                         |                    | Budget to Complete     |                |
| <u>Product Development Organizations</u>  |   |                          |                         |                    |                        |                |
| Sandia National Labs  | Various                                 | Various                  | \$30,870                | \$30,870           | \$0                    | \$0            |
|   |   |                          |                         |                    | \$5,000                | \$15,920       |
|   |   |                          |                         |                    | \$6,965                | \$2,985        |
|   |   |                          |                         |                    |                        | \$30,870       |
| <u>Support and Management Organizations</u>   |   |                          |                         |                    |                        |                |
| Not Applicable  |   |                          |                         |                    |                        |                |
| <u>Test and Evaluation Organizations</u>  |   |                          |                         |                    |                        |                |
| Not Applicable  |   |                          |                         |                    |                        |                |
| Page 11 of 12 Pages   |   |                          |                         |                    | Exhibit R-3            |                |

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| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)   |   | DATE        |       |             |       |       |        |
|--|---|-------------|-------|-------------|-------|-------|--------|
| BUDGET ACTIVITY  |   | PROJECT     |       |             |       |       |        |
| <b>4 - Demonstration And Validation</b>  | <b>0603441F Space Based InfraRed (SBIR)<br/>Dem/Val</b> | <b>0008</b> |       |             |       |       |        |
| <b>(U) B. <u>Budget Acquisition History and Planning Information Continued (\$ in Thousands)</u></b> |   |             |       |             |       |       |        |
| <b>Government Furnished Property:</b> Not Applicable   |   |             |       |             |       |       |        |
| Subtotal Product Development   | 0   | 0           | 5,000 | 15,920      | 6,965 | 2,985 | 30,870 |
| Subtotal Support and Management  | 0   | 0           | 0     | 0           | 0     | 0     | 0      |
| Subtotal Test and Evaluation   | 0   | 0           | 0     | 0           | 0     | 0     | 0      |
| Total Project  | 0   | 0           | 5,000 | 15,920      | 6,965 | 2,985 | 30,870 |
| <i>Page 12 of 12 Pages</i>   |   |             |       | Exhibit R-3 |       |       |        |

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