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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1999 |
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| BUDGET ACTIVITY 7 - Operational System Development | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) |
|---|--|

| COST (\$ In Thousands) | FY 1998 Actual | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | Cost to Complete | Total Cost |
|---------------------------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------|
| Total Program Element (PE) Cost | 864 | 26,521 | 6,517 | 8,584 | 9,576 | 7,634 | 7,795 | 7,957 | TBD | TBD |
| 4689 Global Access Architecture | 864 | 24,407 | 6,517 | 8,584 | 9,576 | 7,634 | 7,795 | 7,957 | TBD | TBD |
| 4690 GATM Integration | 0 | 2,114 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,114 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. Mission Description

4689: Global Air Traffic Management: GATM is the Air Force program designed to meet the evolving aviation requirements of the International Civil Aviation Organization (ICAO). GATM, Navigation and Safety, and Navigation Warfare (NAVWAR) are major components of the AF's Global Access, Navigation, and Safety (GANS) management effort. The Global Air Traffic Operations/Mobility Command and Control (GATO/MC2) System Program Office (SPO) supports GATM as the AF's central focal point for analyzing and evaluating operational requirements, developing aircraft system architectures, acquiring aviation equipment, and certifying weapon system implementation. The system architectures identify necessary equipment and aircraft capability shortfalls across the Air Force inventory, for mobility, information dominance, bombers, fighters, trainers, helicopters, and unmanned aerial vehicles. For those capabilities where no current solution exists, development activities are undertaken in conjunction with existing DoD communications, navigation, surveillance, and safety program offices. To facilitate development, integration, interoperability, and exploration of dual-use technologies, a reconfigurable cockpit and avionics test bed (RCAT) was developed. Dual-use capabilities of avionics to satisfy GATM and military requirements of the Air Force fleet will be explored. The SPO will continue projections of studies and prototype efforts necessary to ensure AF aviation weapon systems are postured to meet civil standards and future changes to the civil standards leading to free flight. This project supports the definition of requirements for ACAT III projects across multiple weapon systems. No existing program satisfies the requirements of the GATM initiatives.

4690: GATM Integration [for the C-130 platform]: Air Force Special Operations Command (AFSOC) funded a separate Multi-Mode Receiver (MMR) program to meet part of future GATM navigation requirements for AFSOC C-130s. GAO recommended the Air Force combine elements of AFSOC's Common Avionics Architecture for Penetration program with elements duplicated in the C-130 Avionics Modernization Program (AMP). GATM integration accurately reflects the application of AFSOC GATM funding from GATM integration to the overall C-130 AMP. Using GATM integration funds for the C-130 AMP eliminates the redundancy of two C-130 modernization efforts and minimizes down time. Realigning under the C-130 AMP provides MMR and Traffic Alert and Collision Avoidance System (TCAS) to comply with European and African airspace criteria. The MMR may incorporate a Microwave Landing System (MLS), Protected Instrument Landing System and Differential Global Positioning System. These modifications enable the MC-130H and other AFSOC aircraft to comply with changing ICAO airspace access criteria. Effort includes engineering design work, mod kit design, and kit proofing. The MC-130H and other Special Operations Forces (SOF) aircraft have highly unique and specialized software. Modification of the software involves changing the code, testing the changes, and updating software documentation and maintenance technical orders. FY99

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| BUDGET ACTIVITY 7 - Operational System Development | | | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) | | |
| includes initial funding to begin engineering design. In accordance with GAO recommendations, FY00 and FY01 GATM Integration funding was transferred to the C-130 AMP program for GATM initiatives. | | | | | |
| (U) B. Budget Activity Justification: | | | | | |
| <u>Project 4689:</u> This program upgrades avionics to add air traffic control capabilities to currently fielded weapon systems and is assigned Budget Activity 7, Operational Systems Development. | | | | | |
| <u>Project 4690:</u> This program will develop mission essential capability for fielded weapon systems and is assigned Budget Activity 7, Operational Systems Development. | | | | | |
| (U) C. Program Change Summary (\$ in Thousands) | | | | | |
| | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>Total Cost</u> |
| (U) Previous President's Budget (FY1999) | 0 | 27,056 | 18,155 | 10,695 | TBD |
| (U) Appropriated Value | 0 | 27,056 | | | |
| (U) Adjustments to Appropriated Value | | | | | |
| a. Congressional/General Reductions | | 535 | | | |
| b. SBIR | | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | | |
| d. Below Threshold Reprogramming | 864 | | | | |
| (U) Adjustments to Budget Years Since FY1999 PB | | | - 11,638 | -2,111 | |
| (U) Current Budget Submit/2000 PB | 864 | 26,521 | 6,517 | 8,584 | TBD |
| (U) Significant Program Changes: | | | | | |
| AFSOC GATM Integration funding has been applied against the C-130 Avionics Modernization Program (AMP). FY99 funds will be used to begin design engineering for AFSOC aircraft. FY00 and FY01 funds were transferred to the C-130 AMP for GATM initiatives. | | | | | |
| FY99: \$850K identified as a source for SBIR | | | | | |

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| BUDGET ACTIVITY 7 - Operational System Development | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) | PROJECT 4689 |
|--|---|------------------------|

| COST (\$ In Thousands) | FY 1998 Actual | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | Cost to Complete | Total Cost |
|---------------------------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------|
| 4689 Global Access Architecture | 864 | 24,407 | 6,517 | 8,584 | 9,576 | 7,634 | 7,795 | 7,957 | TBD | TBD |

(U) A. Mission Description
4689: Global Air Traffic Management: GATM is the Air Force program designed to meet the evolving aviation requirements of the International Civil Aviation Organization (ICAO). GATM, Navigation and Safety, and Navigation Warfare (NAVWAR) are major components of the AF's Global Access, Navigation, and Safety (GANS) management effort. The Global Air Traffic Operations/Mobility Command and Control (GATO/MC2) System Program Office (SPO) supports GATM as the AF's central focal point for analyzing and evaluating operational requirements, developing aircraft system architectures, acquiring aviation equipment, and certifying weapon system implementation. The system architectures identify necessary equipment and aircraft capability shortfalls across the Air Force inventory, for mobility, information dominance, bombers, fighters, trainers, helicopters, and unmanned aerial vehicles. For those capabilities where no current solution exists, development activities are undertaken in conjunction with existing DoD communications, navigation, surveillance, and safety program offices. To facilitate development, integration, interoperability, and exploration of dual-use technologies, a reconfigurable cockpit and avionics test bed (RCAT) was developed. Dual-use capabilities of avionics to satisfy GATM and military requirements of the Air Force fleet will be explored. The SPO will continue projections of studies and prototype efforts necessary to ensure AF aviation weapon systems are postured to meet civil standards and future changes to the civil standards leading to free flight. This project supports the definition of requirements for ACAT III projects across multiple weapon systems. No existing program satisfies the requirements of the GATM initiatives.

- (U) FY 1998 (\$ in Thousands):**
- (U) \$ 376 Begin system architecture definitions
 - (U) \$ 324 Begin operational requirements analysis and evaluation
 - (U) \$ 164 Begin acquisition planning and preparation
 - (U) \$ 864 Total

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| BUDGET ACTIVITY 7 - Operational System Development | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) | PROJECT 4689 |
| <p>(U) <u>FY 1999 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$ 3,228 System architecture definitions, development, and certification - (U) \$ 2,288 Operational requirements analysis, demonstration, and evaluation - (U) \$ 192 Acquisition of ID/IQ aviation equipment - (U) \$ 7,584 Prototype developments and the expansion of dual-use technologies - (U) \$ 8,520 Development of a GATM configurable cockpit and avionics test bed (RCAT) - (U) \$ 1,812 Nav/Safety and GPS/NAVWAR integration and interoperability evaluations - (U) \$ 783 Identified as a source for SBIR - (U) \$24,407 Total <p>(U) <u>FY 2000 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$ 1,129 System architecture definitions, development, and certification - (U) \$ 975 Operational requirements analysis, demonstration, and evaluation - (U) \$ 2,669 Prototype developments and the expansion of dual-use technologies - (U) \$ 1,426 Development of a GATM configurable cockpit and avionics test bed (RCAT) - (U) \$ 203 Acquisition of ID/IQ aviation equipment - (U) \$ 115 Nav/Safety and GPS/NAVWAR integration and interoperability evaluations - (U) \$ 6,517 Total <p>(U) <u>FY 2001 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$ 1,322 System architecture definitions, development, and certification - (U) \$ 1,358 Operational requirements analysis, demonstration, and evaluation - (U) \$ 2,862 Prototype developments and the expansion of dual-use technologies - (U) \$ 2,714 Development of a GATM configurable cockpit and avionics test bed (RCAT) - (U) \$ 207 Acquisition of ID/IQ aviation equipment - (U) \$ 121 Nav/Safety and GPS/NAVWAR integration and interoperability evaluations - (U) \$ 8,584 Total <p>(U) B. <u>Project Change Summary - Description of Significant Changes:</u> None</p> | | |
| Project 4689 | Page 4 of 15 Pages | Exhibit R-2A (PE 0305099F) |

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit) | | | | | | | | DATE February 1999 | | |
|---|----------------|----------------|----------------|---|----------------|----------------|----------------|------------------------------|--------------------|-------------------|
| BUDGET ACTIVITY 7 - Operational System Development | | | | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) | | | | PROJECT 4689 | | |
| (U) C. <u>Other Program Funding Summary (\$ in Thousands)</u> | | | | | | | | | | |
| | <u>FY 1998</u> | <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 Complete</u> | <u>Total Cost</u> |
| (U) Aircraft Procurement, AF, BA-5, C-5 Avionics Modernization Program, PE 0401119F | | 9,700 | 22,600 | 129,937 | 195,268 | 217,337 | 163,120 | 2,385 | | 740,347 |
| (U) RDT&E, AF, BA-7, C-5 AMP, PE 0401119F, C-5 Airlift Squadrons | 3,069 | 33,594 | 44,172 | 30,084 | 7,295 | | | | | 118,685 |
| (U) Aircraft Procurement, AF, BA-5, C-5, 8.33 radio, PE0401119F | 13,322 | 1,875 | | | | | | | | 15,197 |
| (U) Aircraft Procurement, AF, BA-5, C-9 GATM, PE 0401314F | | | | 4,635 | 6,875 | 6,825 | | | | 18,335 |
| (U) Aircraft Procurement, AF, BA-5, C-9 RVSM, PE 0401314F | | 3,753 | 4,413 | 5,680 | | | | | | 13,846 |
| (U) Aircraft Procurement, AF, BA-5, C-9 TAWS, PE 0401314F | | 2,151 | 2,989 | 1,765 | | | | | | 6,905 |
| (U) Aircraft Procurement, AF, BA-5, C-9 TCAS, PE 0401314F | 5,100 | 3,254 | | | | | | | | 11,654 |
| (U) Aircraft Procurement, AF, BA-5, KC-10 8.33 radio, PE 0401219F | 2,036 | 288 | | | | | | | | 2,324 |
| (U) Aircraft Procurement, AF, BA-5, KC-10 GATM, PE 0401219F | | 18,765 | 23,609 | 22,255 | 29,102 | 13,503 | | | | 107,234 |
| (U) Aircraft Procurement, AF, BA-5, KC-10 ADS Broadcast Datalink, PE 0401219F | | | | 3,520 | 2,232 | 6,164 | 3,142 | 1,833 | | 16,891 |
| (U) Aircraft Procurement, AF, BA-5, KC-10 TCAS/TAWS, PE 0401219F | 6,300 | 15,648 | 13,231 | 6,000 | | | | | | 41,179 |
| (U) Aircraft Procurement, AF, BA-5, C-17 8.33 radio, PE 0401130F | 18,423 | | | | | | | | | 25,345 |
| (U) Aircraft Procurement, AF, BA-5, C-17 HFDL, PE 0401130F | | | | 3,150 | 3,150 | | | | | 6,300 |
| (U) Aircraft Procurement, AF, BA-5, C-17 GPS Integrity Monitoring Capability, PE 0401130F | 649 | 10,804 | 12,225 | 1,863 | | | | | | 25,541 |

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BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
0305099F Global Air Traffic Management (GATM)

| | <u>FY 1998</u> | <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 Complete</u> | <u>Total Cost</u> |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------------|-------------------|
| (U) Aircraft Procurement, AF, BA-5, C-17 PLSR, PE 0401130F | 1,700 | | | | | | | | | 17,186 |
| (U) Aircraft Procurement, AF, BA-5, C-17 ADS Upgrade, PE 0401130F | | | | | | | 20,000 | 10,200 | 21,700 | 51,900 |
| (U) Aircraft Procurement, AF, BA-5, C-17 RNP-4, PE 0401130F | | | | 2,622 | 2,622 | | | | | 5,244 |
| (U) Aircraft Procurement, AF, BA-5, C-17 TAWS, PE 0401130F | | | | 343 | 14,571 | 21,496 | 7,094 | | | 43,504 |
| (U) Aircraft Procurement, AF, BA-5, C-17 GATM PE 0401130F | | | 25,600 | 38,400 | 12,800 | | | | | 76,800 |
| (U) Aircraft Procurement, AF, BA-5, C-20 GATM, PE 0401314F | | | | 7,390 | 211 | 1,953 | | | | 9,554 |
| (U) Aircraft Procurement, AF, BA-5, C-20 TAWS, PE 0401314F | 1,731 | 229 | 3,119 | 4,800 | 6,000 | | | | | 15,650 |
| (U) Aircraft Procurement, AF, BA-5, C-20 TCAS, PE 0401314F | 764 | 2,720 | | | | | | | | 4,284 |
| (U) Aircraft Procurement, AF, BA-5, C-21 GATM/New Generation Cockpit, PE 0401314F | 4,497 | 57,450 | 8,627 | 6,717 | 9,470 | 2,964 | 1,645 | 1,645 | | 94,415 |
| (U) Aircraft Procurement, AF, BA-5, C-25 Windshear Warning, PE 0401314F | 3,905 | | 200 | | | | | | | 7,805 |
| (U) Aircraft Procurement, AF, BA-5, C-25 GATM, PE 0401314F | | 2,623 | 7,787 | | 648 | 911 | | | | 11,058 |
| (U) Aircraft Procurement, AF, BA-5, C-25 TAWS, PE 0401314F | 2,920 | | 315 | | | | | | | 3,235 |
| (U) Aircraft Procurement, AF, BA-5, C-32 GATM, PE 0401314F | | | | 6,572 | 2,296 | 7,546 | | | | 16,414 |
| (U) Aircraft Procurement, AF, BA-5, T-43 TCAS, PE 0804742F | | | | | | | 1,743 | 6,500 | | 11,325 |
| (U) Aircraft Procurement, AF, BA-5, T-43 FDR/CVR, PE 0804742F | 2,575 | 1,636 | | | | | | | | 7,711 |

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit) | | | | | | | | DATE February 1999 | | |
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| BUDGET ACTIVITY 7 - Operational System Development | | | | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) | | | | PROJECT 4689 | | |
| | <u>FY 1998</u> | <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 Complete</u> | <u>Total Cost</u> |
| (U) Aircraft Procurement, AF, BA-5, T-43 TAWS, PE 0804742F | | | | 3,072 | 3,459 | | 3,653 | 2,866 | | 13,050 |
| (U) Aircraft Procurement, AF, BA-5, C-130 Flight Data Recorder, PE 0401115F | 56 | | | | | | | | | 5,737 |
| (U) Aircraft Procurement, AF, BA-5, C-130 Avionics Modernization Program, PE 0401115F | 1,825 | 2,754 | 38,572 | 61,035 | 61,371 | 211,234 | 181,910 | 276,229 | 3,103,495 | 3,938,425 |
| (U) Aircraft Procurement, AF, BA-5, C-130 ETCAS, PE 0401115F | 17,376 | 16,154 | 10,323 | 3,500 | 5,350 | 5,800 | 5,800 | 5,800 | | 70,103 |
| (U) Aircraft Procurement, AF, BA-5, C-135 8.33 radio, PE 0401218F | | | 16,613 | 67,200 | | | | | | 83,813 |
| (U) Aircraft Procurement, AF, BA-5, C-135 Interphone replacement, PE 0401218F | 3,200 | 24,103 | 15,224 | 1,050 | | | | | | 43,577 |
| (U) Aircraft Procurement, AF, BA-5, C-135 GATM, PE 0401218F | | 48,398 | 29,631 | 86,495 | 225,857 | 215,172 | 147,435 | 57,117 | 203,084 | 1,013,189 |
| (U) Aircraft Procurement, AF, BA-5, C-135 RVSM, PE 0401218F | 6,000 | 27,687 | 47,392 | 40,034 | 16,371 | | | | | 141,484 |
| (U) Aircraft Procurement, AF, BA-5, C-135 TAWS, PE 0401218F | 5,419 | 8,932 | 19,383 | 9,439 | 8,788 | | | | | 92,708 |
| (U) Aircraft Procurement, AF, BA-5, C-135 FDR/CVR, PE 0401218F | 2,449 | 9,852 | 13,808 | 33,308 | 20,691 | 11,853 | | | | 104,170 |
| (U) Aircraft Procurement, AF, BA-5, C-135 Pacer CRAG, PE 0401218F | 94,071 | 129,515 | 170,657 | 71,550 | | | | | | 659,861 |
| (U) Aircraft Procurement, AF, BA-5, C-137 TCAS, PE0401314 | 231 | | | | | | | | | 4,281 |
| (U) Aircraft Procurement, AF, BA-5, C-141 TCAS, PE 0401118F | 14,050 | 23,656 | 9,357 | | | | | | | 47,063 |
| (U) RDT&E , AF, BA-7, E-3 GATM, PE 0207417F | | | | | | | 24,000 | 72,000 | | 96,000 |
| (U) Aircraft Procurement, AF, BA-5, E-3 GATM, PE 0207417F | | | | | | | 789 | 2,300 | | 3,089 |

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit) | | | | | | | | DATE February 1999 | | |
|--|----------------|----------------|--------------------|---|----------------|----------------|----------------------------|------------------------------|--------------------|-------------------|
| BUDGET ACTIVITY 7 - Operational System Development | | | | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) | | | | PROJECT 4689 | | |
| | <u>FY 1998</u> | <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 Complete</u> | <u>Total Cost</u> |
| (U) Aircraft Procurement, AF, BA-5, E-4 8.33 radio, PE 0302015F | 376 | 300 | 556 | | | | | | | 1,232 |
| (U) Aircraft Procurement, AF, BA-5, E-4 TCAS, PE 0302015F | 2,200 | 1,482 | 1,166 | 1,166 | | | | | | 8,014 |
| (U) Aircraft Procurement, AF, BA-5, E-4 TAWS, PE 0302015F | 3,522 | 1,300 | 1,300 | 2,500 | | | | | | 8,622 |
| (U) Aircraft Procurement, AF, BA-5, E-4 GATM, PE 0302015F | | | | | | | 6,731 | 20,500 | | 27,231 |
| (U) Aircraft Procurement, AF, BA-5, E-4 FDR/CVR, PE 0302015F | | 359 | 364 | 364 | | | | | | 1,087 |
| (U) Aircraft Procurement, AF, BA-5, E-8 GATM, PE 0207581F | | | | | | 3,273 | 27,352 | 52,728 | | 83,353 |
| (U) RDT&E, AF, BA-7, E-8 GATM, PE 0207581F | | | | | | | 23,700 | 45,300 | | 69,000 |
| (U) Aircraft Procurement, AF, BA-5, H-1 Integrated Data Acq Recorder, PE 0101235F | | 965 | | | | | | | | 9,596 |
| (U) Aircraft Procurement, AF, BA-5, H-1 TCAS, PE 0101235F | | | | 6,159 | 240 | 300 | 540 | | | 7,239 |
| (U) Aircraft Procurement, AF, BA-5, GATM, PE 0305099F | 1,750 | | | | | | | | | 1,750 |
| (U) RDT&E, AF, BA07, B-52 GATM, PE 0101113F | | | | | | | 10,000 | 25,000 | 40,000 | 75,000 |
| (U) Aircraft Procurement, AF, BA-5, C-12 FDR/CVR, PE 0401314F | 3,100 | 1,447 | | | | | | | | 9,047 |
| (U) Aircraft Procurement, AF, BA-5, C-12 TAWS, PE 0401314F | | 950 | 1,578 | 1,462 | | | | | | 3,990 |
| (U) D. Acquisition Strategy: | | | | | | | | | | |
| 4689: The GATM Global Access Architecture acquisition strategy enables the GATO/MC2 SPO to guide equipment acquisition supporting global air traffic operations. The SPO will ensure standardization and certification of USAF platforms/systems that operate in the national and global air traffic environments. The SPO will also provide technical expertise and interface with appropriate product/support centers, battle labs, and Department of Defense (DOD) research and development facilities in | | | | | | | | | | |
| Project 4689 | | | Page 8 of 15 Pages | | | | Exhibit R-2A (PE 0305099F) | | | |

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit) | | | | | | | | | | | DATE February 1999 | | | | | | | | |
| BUDGET ACTIVITY 7 - Operational System Development | | | | | | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) | | | | | | PROJECT 4689 | | | | | | | |
| the execution of assigned tasks. Program Research and Development Agreements (PRDAs), Cooperative Research and Development Agreements (CRDAs), and Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts will be competitively awarded. | | | | | | | | | | | | | | | | | | | |
| (U) E. <u>Schedule Profile</u> | | | | | | | | | | | | | | | | | | | |
| * = Completed event X = Planned event | | | | | | | | | | | | | | | | | | | |
| | | <u>FY 1998</u> | | | | | <u>FY 1999</u> | | | | | <u>FY 2000</u> | | | | | <u>FY 2001</u> | | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | |
| (U) Begin System Architecture Definitions | | * | | | | | | | | | | | | | | | | | |
| (U) Begin Development of Open System Architectures | | | | | X | | | | | | | | | | | | | | |
| (U) Prototype Development Contract Awards | | | | | | X | | | | | | | | | | | | | |
| (U) Development of GATM Test Bed | | | | | | X | | | | | | | | | | | | | |
| (U) GPS/NAVWAR Integration Activities | | | | | | | X | | | | | | | | | | | | |

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| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | | | | | | | | DATE February 1999 | |
|--|--|---------------------------------|--------------------------------|---------------------------|---|-----------------------|-----------------------|-----------------------|---------------------------|---------------------------|----------------------|
| BUDGET ACTIVITY 7 - Operational System Development | | | | | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) | | | | | PROJECT 4689 | |
| (U) A. <u>Project Cost Breakdown (\$ in Thousands)</u> | | | | | | | | | | | |
| | | | | | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | | | |
| (U) Identified as a source for SBIR | | | | | | 783 | | | | | |
| (U) System architecture definitions, development, and certification | | | | | 376 | 3,228 | 1,129 | 1,322 | | | |
| (U) Operational requirements analysis, demonstration, and evaluation | | | | | 324 | 2,288 | 975 | 1,358 | | | |
| (U) Acquisition of ID/IQ aviation equipment | | | | | 164 | 192 | 203 | 207 | | | |
| (U) Prototype developments and the expansion of dual-use technologies | | | | | 0 | 7,584 | 2,669 | 2,862 | | | |
| (U) Development of a GATM configurable cockpit and avionics test bed (RCAT) | | | | | 0 | 8,520 | 1,426 | 2,714 | | | |
| (U) Nav/Safety and GPS/NAVWAR integration and interoperability evaluations | | | | | 0 | 1,812 | 115 | 121 | | | |
| (U) Total | | | | | 864 | 24,407 | 6,517 | 8,584 | | | |
| (U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u> | | | | | | | | | | | |
| Performing Organizations: | | | | | | | | | | | |
| <u>Contractor or Government Performing Activity</u> | <u>Contract Method/Type or Funding Vehicle</u> | <u>Award or Obligation Date</u> | <u>Performing Activity EAC</u> | <u>Project Office EAC</u> | <u>Total Prior to FY 1998</u> | <u>Budget FY 1998</u> | <u>Budget FY 1999</u> | <u>Budget FY 2000</u> | <u>Budget FY 2001</u> | <u>Budget to Complete</u> | <u>Total Program</u> |
| <u>Product Development Organizations:</u> | | Not applicable | | | | | | | | | |
| | TBD | VAR | TBD | TBD | 0 | 0 | 20,948 | 5,853 | 7,796 | TBD | TBD |
| <u>Support and Management Organizations</u> | | | | | | | | | | | |
| ESC | ESC/GA | | | | 0 | 864 | 2,676 | 664 | 788 | TBD | TBD |
| <u>Test and Evaluation Organizations</u> | | | | | | | | | | | |
| | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Project 4689 | | | | | Page 10 of 15 Pages | | | | Exhibit R-3 (PE 0305099F) | | |

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| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1999 |
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| BUDGET ACTIVITY 7 - Operational System Development | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) | PROJECT 4689 |
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(U) B. Budget Acquisition History and Planning Information Continued (\$ in Thousands)

Government Furnished Property: None

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1998 | Budget FY 1998 | Budget FY 1999 | Budget FY 2000 | Budget FY 2001 | Budget to Complete | Total Program |
|---|--|--------------------------------|-------------------------------|--------------------------|------------------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|------------------|
| Identified as a source for SBIR | | | | | | | 783 | | | | |
| Subtotal Product Development | | VAR | TBD | TBD | | 0 | 20,948 | 5,853 | 7,796 | TBD | TBD |
| Subtotal Support and Management | | | | | 0 | 864 | 2,676 | 664 | 788 | TBD | TBD |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | | 0 | 864 | 24,407 | 6,517 | 8,584 | TBD | TBD |

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|---|-------------------|---------------------|---------------------|---|---------------------|---------------------|----------------------------|------------------------------|---------------------|------------|
| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit) | | | | | | | | DATE February 1999 | | |
| BUDGET ACTIVITY 7 - Operational System Development | | | | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) | | | | PROJECT 4690 | | |
| COST (\$ In Thousands) | FY 1998 Actual | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | Cost to Complete | Total Cost |
| 4690 GATM Integration | 0 | 2,114 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,114 |
| <p>(U) A. <u>Mission Description</u> 4690: <u>GATM Integration</u> [for the C-130 platform]: Air Force Special Operations Command (AFSOC) funded a separate Multi-Mode Receiver (MMR) program to meet part of future GATM navigation requirements for AFSOC C-130s. GAO recommended the Air Force combine elements of AFSOC's Common Avionics Architecture for Penetration program with elements duplicated in the C-130 Avionics Modernization Program (AMP). GATM integration accurately reflects the application of AFSOC GATM funding from GATM integration to the overall C-130 AMP. Using GATM integration funds for the C-130 AMP eliminates the redundancy of two C-130 modernization efforts and minimizes down time. Realigning under the C-130 AMP provides MMR and Traffic Alert and Collision Avoidance System (TCAS) to comply with European and African airspace criteria. The MMR may incorporate a Microwave Landing System (MLS), Protected Instrument Landing System and Differential Global Positioning System. These modifications enable the MC-130H and other AFSOC aircraft to comply with changing ICAO airspace access criteria. Effort includes engineering design work, mod kit design, and kit proofing. The MC-130H and other Special Operations Forces (SOF) aircraft have highly unique and specialized software. Modification of the software involves changing the code, testing the changes, and updating software documentation and maintenance technical orders. FY99 includes initial funding to begin engineering design. In accordance with GAO recommendations, FY00 and FY01 GATM Integration funding was transferred to the C-130 AMP program for GATM initiatives.</p> <p>(U) <u>FY 1998 (\$ in Thousands):</u> - (U) \$ 0 Total</p> <p>(U) <u>FY 1999 (\$ in Thousands):</u> - (U) 1,032 Systems engineering - (U) 715 Software engineering - (U) 300 Management and Support - (U) 67 Identified as a source for SBIR - (U) \$ 2,114 Total</p> <p>(U) <u>FY 2000 (\$ in Thousands):</u> - (U) \$ 0 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands):</u> - (U) \$ 0 Total</p> | | | | | | | | | | |
| Project 4690 | | | Page 12 of 15 Pages | | | | Exhibit R-2A (PE 0305099F) | | | |

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit) | DATE February 1999 |
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| BUDGET ACTIVITY 7 - Operational System Development | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) | PROJECT 4690 |
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(U) B. Project Change Summary - Description of Significant Changes:

AFSOC GATM Integration funding has been applied against the C-130 Avionics Modernization Program (AMP). FY99 funds will be used to begin design engineering for AFSOC aircraft. FY00 and FY01 funds were transferred to the C-130 AMP.

(U) C. Other Program Funding Summary (\$ in Thousands)

| | <u>FY 1998</u> | <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</u> <u>2005</u> | <u>To</u> <u>Complete</u> | <u>Total</u> <u>Cost</u> |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------------------|------------------------------|-----------------------------|
| (U) Aircraft Procurement, AF, BA-5, C-130 Avionics Modernization Program, PE 0401115F | 2,130 | 100 | 55,000 | 74,480 | 77,392 | 224,757 | 192,531 | 271,688 | 1,539,700 | 2,437,778 |

(U) D. Acquisition Strategy:

4690: The integration acquisition strategy for AFSOC communication/navigation modifications enables the GATO/MC2 SPO to use existing contracts, when possible, to assist in the technical design and integration. The modifications will be accomplished under the SOF Integrated Weapons System Support Program (IWSSP) contract.

(U) E. Schedule Profile:

N/A

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| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | | | | | | | | DATE February 1999 | |
|--|---------------------------------|-------------------|-------------------|----------------|--|----------------|----------------|----------------|---------------------------|-----------------------|-----------------|
| BUDGET ACTIVITY 7 - Operational System Development | | | | | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) | | | | | PROJECT 4690 | |
| (U) A. <u>Project Cost Breakdown (\$ in Thousands)</u> | | | | | | | | | | | |
| | | | | | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | | | |
| (U) | Identified as a source for SBIR | | | | | 67 | | | | | |
| (U) | Software engineering | | | | | 715 | | | | | |
| (U) | System engineering | | | | | 1,032 | | | | | |
| (U) | Management and Support | | | | | 300 | | | | | |
| (U) | Total | | | | 0 | 2,114 | 0 | 0 | | | |
| (U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u> | | | | | | | | | | | |
| Performing Organizations: | | | | | | | | | | | |
| <u>Contractor or</u> | <u>Contract</u> | | | | | | | | | | |
| <u>Government</u> | <u>Method/Type</u> | <u>Award or</u> | <u>Performing</u> | <u>Project</u> | <u>Total</u> | <u>Budget</u> | <u>Budget</u> | <u>Budget</u> | <u>Budget</u> | <u>Budget to</u> | <u>Total</u> |
| <u>Performing</u> | <u>or Funding</u> | <u>Obligation</u> | <u>Activity</u> | <u>Office</u> | <u>Prior to</u> | <u>FY 1998</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>Complete</u> |
| <u>Activity</u> | <u>Vehicle</u> | <u>Date</u> | <u>EAC</u> | <u>EAC</u> | <u>FY 1998</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>Complete</u> | <u>Program</u> |
| <u>Product Development Organizations</u> | | | | | | | | | | | |
| TBD | TBD | Dec 98 | | 1,747 | 0 | 0 | 1,747 | 0 | 0 | 0 | 1,747 |
| <u>Support and Management Organizations</u> | | | | | | | | | | | |
| WR-ALC/LU | TBD | | | | | | 200 | | | | 200 |
| ASC/LU | TBD | | | | | | 100 | | | | 100 |
| <u>Test and Evaluation Organizations</u> | | | | | | | | | | | |
| | | | | | | | 0 | | | 0 | 0 |
| Project 4690 | | | | | Page 14 of 15 Pages | | | | Exhibit R-3 (PE 0305099F) | | |

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| BUDGET ACTIVITY 7 - Operational System Development | PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM) | PROJECT 4690 |
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(U) B. Budget Acquisition History and Planning Information Continued (\$ in Thousands)

Government Furnished Property:

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1998 | Budget FY 1998 | Budget FY 1999 | FY 2000 | FY 2001 | Budget to Complete | Total Program |
|--|---|--------------------------|---------------|------------------------|----------------|----------------|---------|---------|--------------------|---------------|
| <u>Product Development Property</u> | | | | | | | | | | |
| TBD | | | | | | | | | | TBD |
| <u>Support and Management Property</u> | | | | | | | | | | |
| TBD | | | | | | | | | | TBD |
| <u>Test and Evaluation Property</u> | | | | | | | | | | |
| Identified as a source for SBIR | | | | | | 67 | | | | 67 |
| Subtotal Product Development | | | | | | 1,747 | | | 0 | 1,747 |
| Subtotal Support and Management | | | | | | 300 | | | 0 | 300 |
| Subtotal Test and Evaluation | | | | | | 0 | | | 0 | 0 |
| Total Project | | | | 0 | 0 | 2,114 | | | 0 | 2,114 |

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