

UNCLASSIFIED

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 2002 |
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| | |
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| BUDGET ACTIVITY 07 - Operational System Development | PE NUMBER AND TITLE 0305164F NAVSTAR Global Positioning System User Equipment Space |
| | PROJECT 3028 |

| COST (\$ in Thousands) | FY 2001 Actual | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate | Cost to Complete | Total Cost |
|----------------------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------|
| 3028 Navstar GPS | 60,330 | 52,541 | 86,799 | 60,981 | 61,595 | 64,415 | 70,062 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) **A. Mission Description**
 The Global Positioning System (GPS) is a space-based radio positioning, navigation, and time distribution system. GPS User Equipment (UE) consists of standardized receivers, antennae, antenna electronics, etc., grouped together in sets to derive navigation and time information transmitted from GPS satellites. These receiver sets are used by all Services and DoD. RDT&E funds UE development and testing, studies and engineering to assist UE aircraft integration, software upgrades, product improvement studies, commercial GPS UE test and evaluation, and mission support. Due to increasing military GPS dependence and emerging Electronic Warfare (EW) threat, Navigation Warfare (Navwar) program was established to address EW solutions for GPS. Key elements of GPS Modernization include protecting U.S. military and allies' use of GPS, preventing hostile exploitation of GPS, and preserving civil use of GPS outside the area of operations (AOO).

(U) **FY 2001 (\$ in Thousands)**

| | |
|--------------|--|
| (U) \$16,107 | Continued advanced UE technology effort |
| (U) \$17,478 | Continued Selective Availability Anti-Spoofing Module (SAASM)/GPS Receiver Application Module (GRAM)-SAASM/development |
| (U) \$2,332 | Continued Integration, Test and Evaluation |
| (U) \$275 | Completed ACTD (Protection) objectives under Joint GPS Combat Evaluation (JGPSCE) |
| (U) \$7,132 | Continued System Engineering and Support |
| (U) \$8,962 | Continued Modernization efforts (M-Code Development) |
| (U) \$8,044 | Continued classified requirement |
| (U) \$60,330 | Total |

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 2002 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|------------------------------|----------------|---|--------------|---------------------------------------|-------------|---|-------------|---|--------------|---|-------------|---------------------------------|--------------|-------|--------------|--|--------------|---------------------------------------|-------------|---|--------------|---|--------------|---|--------------|-------|--|----------------|----------------|----------------|-------------------|---------------------------------|--------|--------|--------|-----|------------------------|--------|--------|--|--|---------------------------------------|--|--|--|--|-------------------------------------|------|------|--|--|---------------------------------------|--------|--|--|--|---|------|--|--|--|
| BUDGET ACTIVITY 07 - Operational System Development | PE NUMBER AND TITLE 0305164F NAVSTAR Global Positioning System User Equipment Space | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROJECT 3028 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <table style="width: 100%;"> <tr><td style="width: 15%;">(U) \$14,577</td><td>Continue Advanced UE Technology efforts</td></tr> <tr><td>(U) \$17,177</td><td>Continue SAASM/GRAM-SAASM development</td></tr> <tr><td>(U) \$2,668</td><td>Continue Integration, Test and Evaluation</td></tr> <tr><td>(U) \$5,919</td><td>Continue System Engineering and Support</td></tr> <tr><td>(U) \$10,200</td><td>Continue Modernization efforts (M-Code Development)</td></tr> <tr><td>(U) \$2,000</td><td>Complete classified requirement</td></tr> <tr><td>(U) \$52,541</td><td>Total</td></tr> </table> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <table style="width: 100%;"> <tr><td style="width: 15%;">(U) \$18,853</td><td>Continue Advance UE Technology efforts</td></tr> <tr><td>(U) \$15,082</td><td>Continue SAASM/GRAM-SAASM development</td></tr> <tr><td>(U) \$7,211</td><td>Continue Integration, Test and Evaluation</td></tr> <tr><td>(U) \$12,321</td><td>Continue System Engineering and Support</td></tr> <tr><td>(U) \$33,332</td><td>Continue Modernization efforts (M-Code Development)</td></tr> <tr><td>(U) \$86,799</td><td>Total</td></tr> </table> <p>(U) <u>B. Budget Activity Justification</u> This program element is in Budget Activity 7 - Operational System Development, because UE passed Milestone IIB in January 1992.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">66,360</td> <td style="text-align: center;">53,093</td> <td style="text-align: center;">57,035</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">66,975</td> <td style="text-align: center;">53,093</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. Congressional/General Reductions</td> <td style="text-align: center;">-469</td> <td style="text-align: center;">-552</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td style="text-align: center;">-4,377</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: center;">-800</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | | (U) \$14,577 | Continue Advanced UE Technology efforts | (U) \$17,177 | Continue SAASM/GRAM-SAASM development | (U) \$2,668 | Continue Integration, Test and Evaluation | (U) \$5,919 | Continue System Engineering and Support | (U) \$10,200 | Continue Modernization efforts (M-Code Development) | (U) \$2,000 | Complete classified requirement | (U) \$52,541 | Total | (U) \$18,853 | Continue Advance UE Technology efforts | (U) \$15,082 | Continue SAASM/GRAM-SAASM development | (U) \$7,211 | Continue Integration, Test and Evaluation | (U) \$12,321 | Continue System Engineering and Support | (U) \$33,332 | Continue Modernization efforts (M-Code Development) | (U) \$86,799 | Total | | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>Total Cost</u> | (U) Previous President's Budget | 66,360 | 53,093 | 57,035 | TBD | (U) Appropriated Value | 66,975 | 53,093 | | | (U) Adjustments to Appropriated Value | | | | | a. Congressional/General Reductions | -469 | -552 | | | b. Small Business Innovative Research | -4,377 | | | | c. Omnibus or Other Above Threshold Reprogram | -800 | | | |
| (U) \$14,577 | Continue Advanced UE Technology efforts | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) \$17,177 | Continue SAASM/GRAM-SAASM development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) \$2,668 | Continue Integration, Test and Evaluation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) \$5,919 | Continue System Engineering and Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) \$10,200 | Continue Modernization efforts (M-Code Development) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) \$2,000 | Complete classified requirement | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) \$52,541 | Total | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) \$18,853 | Continue Advance UE Technology efforts | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) \$15,082 | Continue SAASM/GRAM-SAASM development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) \$7,211 | Continue Integration, Test and Evaluation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) \$12,321 | Continue System Engineering and Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) \$33,332 | Continue Modernization efforts (M-Code Development) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) \$86,799 | Total | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>Total Cost</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) Previous President's Budget | 66,360 | 53,093 | 57,035 | TBD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) Appropriated Value | 66,975 | 53,093 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (U) Adjustments to Appropriated Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| a. Congressional/General Reductions | -469 | -552 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| b. Small Business Innovative Research | -4,377 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| c. Omnibus or Other Above Threshold Reprogram | -800 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project 3028 | Page 2 of 9 Pages | Exhibit R-2 (PE 0305164F) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | | | | | DATE | | |
|--|--|----------------|-----------------|---|-----------------|-----------------|-----------------|-------------------------|-------------------|
| | | | | | | | February 2002 | | |
| BUDGET ACTIVITY | | | | PE NUMBER AND TITLE | | | PROJECT | | |
| 07 - Operational System Development | | | | 0305164F NAVSTAR Global Positioning System User Equipment Space | | | 3028 | | |
| (U) C. Program Change Summary (\$ in Thousands) Continued | | | | | | | | | |
| | | | | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | | <u>Total Cost</u> | |
| | d. Below Threshold Reprogram | | | -854 | | | | | |
| | e. Rescissions | | | -145 | | | | | |
| (U) | Adjustments to Budget Years Since FY 2002 PBR | | | | 0 | 29,764 | | | |
| (U) | Current Budget Submit/FY 2003 PBR | | | 60,330 | 52,541 | 86,799 | | TBD | |
| (U) | <u>Significant Program Changes:</u> FY03 adjustment of \$9,926K to realign technical support funds with associated user equipment RDT&E efforts and \$19,838K for accelerated M-code. | | | | | | | | |
| (U) D. Other Program Funding Summary (\$ in Thousands) | | | | | | | | | |
| | | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> | <u>Total Cost</u> |
| | | <u>Actual</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Cost to Complete</u> | |
| (U) | AF RDT&E | | | | | | | | |
| (U) | Other APPN | | | | | | | | |
| (U) | Operations and Maintenance (PE 0305164F, BA 1 - Operating Forces, SAG 13D) | 1,677 | 1,347 | 1,838 | 6,183 | 6,153 | 6,356 | 6,502 | Continuing |
| (U) | Aircraft Procurement (PE 0305164F, BA 7, Aircraft Support Equipment, BP19, P-74) | 36,933 | 29,074 | 17,619 | 39,422 | 55,633 | 67,432 | 58,018 | Continuing |
| (U) | Other Procurement (PE 0305164F, BP 63 - Electronics & Telecommunications Equipment, WSC 6730, P-62) | 1,637 | 3,975 | 4,257 | 4,324 | 4,325 | 4,702 | 1,043 | Continuing |
| (U) | Other Procurement (PE 0305164F, BP 86 - Spares & | 0 | 381 | 85 | 388 | 0 | 0 | 0 | 854 |
| Project 3028 | | | | | | | | | |

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|---|----------------|-----------------|-----------------|-----------------|-----------------|---|-----------------|-----------------|-------------------|---|------------------------------|------------------------|---|---|
| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | | | | | | | | | DATE February 2002 | | | |
| BUDGET ACTIVITY 07 - Operational System Development | | | | | | PE NUMBER AND TITLE 0305164F NAVSTAR Global Positioning System User Equipment Space | | | | | | PROJECT 3028 | | |
| (U) D. Other Program Funding Summary (\$ in Thousands) | | | | | | | | | | | | | | |
| | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> | <u>Cost to</u> | <u>Total Cost</u> | | | | | |
| | <u>Actual</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Complete</u> | | | | | | |
| Repair Parts, WSC 190A, P-101) | | | | | | | | | | | | | | |
| (U) Related RDT&E: | | | | | | | | | | | | | | |
| (U) PE 0305165F, NAVSTAR GPS (Space/Ground Segments) | | | | | | | | | | | | | | |
| (U) PE 0603421, NAVSTAR GPS (GPS III) | | | | | | | | | | | | | | |
| (U) PE 0305176F, Combat Survivor/Evader Locator | | | | | | | | | | | | | | |
| (U) E. Acquisition Strategy | | | | | | | | | | | | | | |
| Several ongoing and planned concept definition and technology risk reduction programs will define and mature required GPS technologies needed for GPS Modernization. Our strategy will develop an open system architecture for a GPS receiver based on the GPS Receiver Application Module (GRAM) concept. The GRAM-SAASM program is a further risk reduction effort to integrate the GPS receiver operations internally between GRAM and SAASM. Also, several anti-jam technology risk reduction efforts will be pursued to mature technologies and prepare for technology insertion. Continue to work with platforms/users to identify requirements and upgrade paths to insert GPS enhancements. Additionally, conduct a study to develop a low end and high end handheld receivers as the first part of a two step acquisition approach (a PRDA followed by a production contract). | | | | | | | | | | | | | | |
| (U) F. Schedule Profile | | | | | | | | | | | | | | |
| | | | <u>FY 2001</u> | | | <u>FY 2002</u> | | | <u>FY 2003</u> | | | | | |
| | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) GRAM-SAASM ICD complete | | | | | | | | | | | | | | |
| (U) GRAM-SAASM preproduction prototypes deliveries | | | | | | | | | | | | | | |
| (U) Begin M-Code receiver development | | | | | | | | | | | | | | |
| (U) M-Code Receiver Acquisition Start Approval | | | | | | | | | | | | | | |
| Project 3028 | | | | | | | | | | | | | | |
| Page 4 of 9 Pages | | | | | | | | | | | | | | |
| Exhibit R-2 (PE 0305164F) | | | | | | | | | | | | | | |

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| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | | | | | DATE February 2002 | | | |
|---|--|----------------------------|----------------------------|-----------------------|---|-----------------------|-----------------------|---------------------------|---------------------------|----------------------|
| BUDGET ACTIVITY | | | | | PE NUMBER AND TITLE | | | PROJECT | | |
| 07 - Operational System Development | | | | | 0305164F NAVSTAR Global Positioning System User | | | 3028 | | |
| | | | | | Equipment Space | | | | | |
| (U) A. Project Cost Breakdown (\$ in Thousands) | | | | | | | | | | |
| | | | | | | <u>FY 2001</u> | | <u>FY 2002</u> | | <u>FY 2003</u> |
| (U) | Advanced UE Technology effort | | | | | 16,107 | | 14,577 | | 18,853 |
| (U) | SAASM/GRAM-SAASM development | | | | | 17,478 | | 17,177 | | 15,082 |
| (U) | Integration, Test and Evaluation | | | | | 2,332 | | 2,668 | | 7,211 |
| (U) | ACTD (Protection) objectives under JGPSCE demo | | | | | 275 | | 0 | | 0 |
| (U) | System engineering and support | | | | | 7,132 | | 5,919 | | 12,321 |
| (U) | Modernization (M-Code Development) | | | | | 8,962 | | 10,200 | | 33,332 |
| (U) | Classified Requirement | | | | | 8,044 | | 2,000 | | 0 |
| (U) | Total | | | | | 60,330 | | 52,541 | | 86,799 |
| (U) B. Budget Acquisition History and Planning Information (\$ in Thousands) | | | | | | | | | | |
| (U) Performing Organizations: | | | | | | | | | | |
| <u>Contractor or Government</u> | <u>Contract Method/Type</u> | <u>Award or Obligation</u> | <u>Performing Activity</u> | <u>Project Office</u> | <u>Total Prior to FY 2001</u> | <u>Budget FY 2001</u> | <u>Budget FY 2002</u> | <u>Budget FY 2003</u> | <u>Budget to Complete</u> | <u>Total Program</u> |
| <u>Performing Activity</u> | <u>or Funding Vehicle</u> | <u>Date</u> | <u>EAC</u> | <u>EAC</u> | | | | | | |
| <u>Product Development Organizations</u> | | | | | | | | | | |
| Rockwell (MAGR) | C/FPIF/FFP/CPAF | Various | 19,293 | 19,293 | 19,293 | 0 | 0 | 0 | 0 | 19,293 |
| DOE Sandia (SAASM) | MIPR | Feb 94 | N/A | N/A | 16,922 | 3,023 | 0 | 6,021 | Continuing | TBD |
| NAWC (SAASM) | MIPR | Oct 95 | 599 | 599 | 599 | 0 | 0 | 0 | 0 | 599 |
| Various (SAASM) | Various | Various | N/A | N/A | 11,199 | 5,322 | 5,334 | 4,593 | Continuing | TBD |
| Various (M-Code) | Various | Dec 00 | N/A | N/A | 0 | 8,962 | 10,200 | 33,332 | Continuing | TBD |
| Alliant Techsys Inc (SAASM) | C/CPFF | Oct 95 | 4,782 | 4,782 | 4,782 | 0 | 0 | 0 | 0 | 4,782 |
| Multiple (NAVWAR PRDAs) | C/CPAF | Aug 96 | 13,440 | 13,440 | 13,440 | 0 | 0 | 0 | 0 | 13,440 |
| Holloman AFB (Integration) | Project Order | N/A | N/A | N/A | 3,860 | 659 | 629 | 641 | Continuing | TBD |
| Project 3028 | | | | | Page 6 of 9 Pages | | | Exhibit R-3 (PE 0305164F) | | |

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| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | | | | | | | | DATE |
|---|--------------------|---------|--------|---|--------|--------|-------|--------|------------|---------------|
| | | | | | | | | | | February 2002 |
| BUDGET ACTIVITY | | | | PE NUMBER AND TITLE | | | | | | PROJECT |
| 07 - Operational System Development | | | | 0305164F NAVSTAR Global Positioning System User Equipment Space | | | | | | 3028 |
| (U) Performing Organizations Continued: | | | | | | | | | | |
| <u>Product Development Organizations</u> | | | | | | | | | | |
| General Dynamics (Various) | Time and Materials | Jan 96 | 1,810 | 1,810 | 1,810 | 0 | 0 | 0 | 0 | 1,810 |
| ACTD (Prevention/Protection) | Various | Various | 7,428 | 7,428 | 7,428 | 0 | 0 | 0 | 0 | 7,428 |
| ACTD (Protection) | Various | Various | 20,186 | 20,186 | 19,811 | 275 | 0 | 0 | 0 | 20,086 |
| Adv UE Protection Dev | Various | Various | 20,691 | 20,691 | 1,810 | 7,703 | 7,601 | 4,253 | 0 | 21,367 |
| Various (NET) | Various | Various | 10,334 | 10,334 | 10,334 | 0 | 0 | 0 | 0 | 10,334 |
| Various (Classified Requirement) | Various | Various | 17,786 | 17,786 | 14,235 | 8,044 | 2,000 | 0 | 0 | 24,279 |
| Various (GPS Modernization) | Various | Various | TBD | TBD | 5,785 | 0 | 0 | 0 | 0 | 5,785 |
| Various (Navwar M&S) | Various | Various | 3,575 | 3,575 | 3,575 | 0 | 0 | 0 | 0 | 3,575 |
| CeCom (DAGR study) | MIPR | Dec 97 | 273 | 273 | 273 | 0 | 0 | 0 | 0 | 273 |
| Allan Osborne, Alliant Tech, Rockwell Collins, and Raytheon (Handheld PRDA) | PRDA | Jan 01 | 13,645 | 13,645 | 0 | 10,622 | 5,776 | 10,752 | Continuing | TBD |
| Various (GRAM-SAASM) | PRDA | Jul 98 | 27,469 | 27,469 | 25,169 | 1,430 | 4,242 | 0 | 0 | 30,841 |
| Advanced UE Tech Invest | Various | Various | 4,646 | 4,646 | 4,646 | 0 | 0 | 0 | 0 | 4,646 |
| Receiver Technology | Various | Various | N/A | N/A | 3,218 | 1,020 | 3,145 | 2,447 | Continuing | TBD |
| Anti-jam Filter Technology | Various | Various | N/A | N/A | 150 | 450 | 1,700 | 1,000 | Continuing | TBD |
| Advanced Antenna Technology | Various | Various | N/A | N/A | 2,722 | 4,015 | 3,956 | 4,654 | Continuing | TBD |
| <u>Support and Management Organizations</u> | | | | | | | | | | |
| Overlook Sys (OASD/C3I) | C/CPFF | Dec 95 | N/A | N/A | 18,962 | 3,335 | 3,444 | 0 | 0 | 25,741 |
| Aerospace Corp (Technical Supt) | CPFF | Various | N/A | N/A | 3,040 | 2,112 | 681 | 3,345 | Continuing | TBD |
| SMC/FMB | Various | Various | N/A | N/A | 5,832 | 677 | 942 | 960 | Continuing | TBD |

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| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | | | | | | | | DATE February 2002 | |
|--|--------------------|-------------------|-----------------|-------------------|--|----------------|----------------|---------------------------|------------------|-----------------------|--|
| BUDGET ACTIVITY | | | | | PE NUMBER AND TITLE | | | | | PROJECT | |
| 07 - Operational System Development | | | | | 0305164F NAVSTAR Global Positioning System User Equipment Space | | | | | 3028 | |
| (U) Performing Organizations Continued: | | | | | | | | | | | |
| <u>Support and Management Organizations</u> | | | | | | | | | | | |
| (Shared Prg Cost) | | | | | | | | | | | |
| PRC (Technical Supt) | Time and Materials | Dec 95 | 714 | 714 | 714 | 0 | 0 | 0 | 0 | 714 | |
| Miscellaneous (In-house support) | Various | Various | N/A | N/A | 4,840 | 1,008 | 852 | 8,231 | Continuing | TBD | |
| Various (Other Navwar Studies) | Various | Various | 2,375 | 2,375 | 2,375 | 0 | 0 | 0 | 0 | 2,375 | |
| <u>Test and Evaluation Organizations</u> | | | | | | | | | | | |
| 46th TG (SAASM/Test) | Project Order | Various | 31,987 | 31,987 | 31,987 | 0 | 0 | 0 | 0 | 31,987 | |
| 46th TG (UE develop & product testing) | Project Order | Various | N/A | N/A | 6,954 | 1,673 | 2,039 | 6,570 | Continuing | TBD | |
| (U) Government Furnished Property: | | | | | | | | | | | |
| | <u>Contract</u> | | | | | | | | | | |
| | <u>Method/Type</u> | <u>Award or</u> | | | | | | | | | |
| <u>Item</u> | <u>or Funding</u> | <u>Obligation</u> | <u>Delivery</u> | | <u>Total Prior</u> | <u>Budget</u> | <u>Budget</u> | <u>Budget</u> | <u>Budget to</u> | <u>Total</u> | |
| <u>Description</u> | <u>Vehicle</u> | <u>Date</u> | <u>Date</u> | | <u>to FY 2001</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>Complete</u> | <u>Program</u> | |
| <u>Product Development Property</u> | | | | | | | | | | | |
| N/A | | | | | | | | | | | |
| <u>Support and Management Property</u> | | | | | | | | | | | |
| N/A | | | | | | | | | | | |
| <u>Test and Evaluation Property</u> | | | | | | | | | | | |
| N/A | | | | | | | | | | | |
| Project 3028 | | | | Page 8 of 9 Pages | | | | Exhibit R-3 (PE 0305164F) | | | |

UNCLASSIFIED

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | | | DATE February 2002 | |
|--|--|--|----------------|----------------|-----------------------|------------------|
| BUDGET ACTIVITY | | PE NUMBER AND TITLE | | | PROJECT | |
| 07 - Operational System Development | | 0305164F NAVSTAR Global Positioning System User Equipment Space | | | 3028 | |
| | | <u>Total Prior</u> | <u>Budget</u> | <u>Budget</u> | <u>Budget</u> | <u>Budget to</u> |
| <u>Subtotals</u> | | <u>to FY 2001</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>Complete</u> |
| Subtotal Product Development | | 171,061 | 51,525 | 44,583 | 67,693 | TBD |
| Subtotal Support and Management | | 35,763 | 7,132 | 5,919 | 12,536 | TBD |
| Subtotal Test and Evaluation | | 38,941 | 1,673 | 2,039 | 6,570 | TBD |
| Total Project | | 245,765 | 60,330 | 52,541 | 86,799 | TBD |