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**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Army** **DATE:** February 2012

| <b>APPROPRIATION/BUDGET ACTIVITY</b>  |                |                |                     | <b>R-1 ITEM NOMENCLATURE</b>                       |                      |                |                |                |                |                         |                   |
|---|----------------|----------------|---------------------|--|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| 2040: <i>Research, Development, Test &amp; Evaluation, Army</i><br>BA 5: <i>Development &amp; Demonstration (SDD)</i> |                |                |                     | PE 0304270A: <i>Electronic Warfare Development</i> |                      |                |                |                |                |                         |                   |
| <b>COST (\$ in Millions)</b>  | <b>FY 2011</b> | <b>FY 2012</b> | <b>FY 2013 Base</b> | <b>FY 2013 OCO</b>                                 | <b>FY 2013 Total</b> | <b>FY 2014</b> | <b>FY 2015</b> | <b>FY 2016</b> | <b>FY 2017</b> | <b>Cost To Complete</b> | <b>Total Cost</b> |
| Total Program Element   | 13.134         | 13.807         | 13.942              | -  | 13.942               | 13.820         | 14.480         | 14.827         | 15.018         | Continuing              | Continuing        |
| EW5: <i>ELECTRONIC WARFARE DEVELOPMENT - MIP</i>  | 10.090         | 10.422         | 10.441              | -  | 10.441               | 9.847          | 9.312          | 9.459          | 9.559          | Continuing              | Continuing        |
| EW6: <i>ARAT-TSS - MIP</i>  | 3.044          | 3.385          | 3.501               | -  | 3.501                | 3.973          | 5.168          | 5.368          | 5.459          | Continuing              | Continuing        |

**Note**

Change Summary Explanation: Funding - FY 2011: Program transferred from 0604270A beginning in FY 11 to comply with fully captured Military Intelligence Program (MIP) elements.

**A. Mission Description and Budget Item Justification**

FY 2011 budget request funds Electronic Warfare Development. This program element (PE) encompasses engineering and manufacturing development for tactical electronic warfare (EW). EW encompasses the development of tactical EW equipment and systems mounted in both ground and air vehicles. The systems under this program provides the Army with the capability to degrade or deny hostile forces the effective use of their communications, countermortar/counterbattery radars, surveillance radars, infrared/optical battlefield surveillance systems and electronically fused munitions. Existing Army EW systems must be replaced or upgraded to maintain their capability in the face of threats. The Army Reprogramming Analysis Team (ARAT) Project will develop, test and equip an Army-wide infrastructure capable of rapidly reprogramming electronic combat software embedded in offensive and defensive weapon systems.

| <b>B. Program Change Summary (\$ in Millions)</b> | <b>FY 2011</b> | <b>FY 2012</b> | <b>FY 2013 Base</b> | <b>FY 2013 OCO</b> | <b>FY 2013 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget                       | 21.571         | 13.819         | 13.918              | -                  | 13.918               |
| Current President's Budget                        | 13.134         | 13.807         | 13.942              | -                  | 13.942               |
| Total Adjustments                                 | -8.437         | -0.012         | 0.024               | -                  | 0.024                |
| • Congressional General Reductions                | -              | -              |                     |                    |                      |
| • Congressional Directed Reductions               | -              | -              |                     |                    |                      |
| • Congressional Rescissions                       | -              | -              |                     |                    |                      |
| • Congressional Adds                              | -              | -              |                     |                    |                      |
| • Congressional Directed Transfers                | -              | -              |                     |                    |                      |
| • Reprogrammings                                  | -              | -              |                     |                    |                      |
| • SBIR/STTR Transfer                              | -              | -              |                     |                    |                      |
| • Adjustments to Budget Years                     | -              | -              | 0.024               | -                  | 0.024                |
| • Other Adjustments 1                             | -8.437         | -0.012         | -                   | -                  | -                    |

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| Exhibit R-2A, RDT&E Project Justification: PB 2013 Army  |         |         |                 |  |                  |         |         |   | DATE: February 2012 |                     |            |
| APPROPRIATION/BUDGET ACTIVITY<br>2040: Research, Development, Test & Evaluation, Army<br>BA 5: Development & Demonstration (SDD) |         |         |                 | R-1 ITEM NOMENCLATURE<br>PE 0304270A: Electronic Warfare Development |                  |         |         | PROJECT<br>EW5: ELECTRONIC WARFARE<br>DEVELOPMENT - MIP |                     |                     |            |
| COST (\$ in Millions)  | FY 2011 | FY 2012 | FY 2013<br>Base | FY 2013<br>OCO   | FY 2013<br>Total | FY 2014 | FY 2015 | FY 2016   | FY 2017             | Cost To<br>Complete | Total Cost |
| EW5: ELECTRONIC WARFARE<br>DEVELOPMENT - MIP   | 10.090  | 10.422  | 10.441          | -  | 10.441           | 9.847   | 9.312   | 9.459   | 9.559               | Continuing          | Continuing |
| Quantity of RDT&E Articles   |         |         |                 |  |                  |         |         |   |                     |                     |            |

**A. Mission Description and Budget Item Justification**

Prophet Enhanced (PE) is the tactical commander's sole organic ground-based Signals Intelligence (SIGINT)/Electronic Warfare system for the Brigade Combat Team (BCT), Stryker Brigade Combat Team (SBCT), and Battlefield Surveillance Brigade (BfSB). Its primary mission is to provide 24-hour Situation Development and Information Superiority to the supported maneuver brigade to enable the most effective engagement of enemy forces. A BCT is typically fielded with two PE sensors and one Prophet Control/Prophet Analytic Cell (PC/PAC), which comprise the organic SIGINT collection and analytical functions for the unit. PE provides a modular, scalable, open architecture-based system solution optimized for ease of use in a variety of profiles (Stationary-Fixed, Mobile and Manpack). It also incorporates the ability for rapid integration of Technical Insertions and Pre-Planned Product Improvements to ensure operational relevance. PE is a non-vehicle specific system, allowing maximum flexibility to accommodate a myriad of platforms. It is comprised of modular components that provide a simultaneous mission capability in Stationary-Fixed, Mobile and Manpack configurations. This provides the commander maximum flexibility in employing the PE system and enhances the SIGINT capabilities available. PE provides reach-back capability and interfaces directly with the National SIGINT Enterprise via Wideband Beyond Line of Sight (WB BLOS) Satellite Communications at PC/PAC and the Sensor. PE is an integral part of the Army Modernization providing Near Real Time (NRT) information to the Brigade Commander within their combat decision cycle. This NRT information provides a key component of the fused intelligence Common Operating Environment (COE). PE is being fielded to deploying units in accordance with Army Force Generation (ARFORGEN) requirements.

FY2013 Base dollars support the following activities: develops product upgrades for Next Generation Signals to increase the capabilities of the PE and maintain operational relevance; initiates integration of Real-time Signal Processing architectural framework (e.g. Red Hawk); and initiates integration and testing of a software defined radio/receiver and antenna solutions (e.g. PENNANTRACE and Roadmaster) into the PE Sensor.

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   |                  | <b>FY 2011</b> | <b>FY 2012</b> | <b>FY 2013</b> |
|---|------------------|----------------|----------------|----------------|
| <b>Title:</b> Integrate Electronic Warfare Systems<br><br><b>Description:</b> Integrate Electronic Warfare Systems<br><br><b>FY 2011 Accomplishments:</b><br>Integrate Electronic Warfare Systems | <b>Articles:</b> | 4.900<br>0     | -              | -              |
|   |                  |                |                |                |
|   |                  |                |                |                |
| <b>Title:</b> Software System Integration Lab (SIL)   | <b>Articles:</b> | 0.937<br>0     | -              | -              |
|   |                  |                |                |                |
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| Exhibit R-2A, RDT&E Project Justification: PB 2013 Army  |  |  | DATE: February 2012                                     |         |         |
| APPROPRIATION/BUDGET ACTIVITY<br>2040: Research, Development, Test & Evaluation, Army<br>BA 5: Development & Demonstration (SDD) |  | R-1 ITEM NOMENCLATURE<br>PE 0304270A: Electronic Warfare Development | PROJECT<br>EW5: ELECTRONIC WARFARE<br>DEVELOPMENT - MIP |         |         |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)   |  |  | FY 2011   | FY 2012 | FY 2013 |
| Description: Stand up Software SIL   |  |  |   |         |         |
| FY 2011 Accomplishments:<br>Stand up Software SIL  |  |  |   |         |         |
| Title: Radio/Receiver Integration (integrate software defined receiver)  |  |  | 4.253   | -       | -       |
| Articles:  |  |  | 0   |         |         |
| Description: Integrate software defined receiver.  |  |  |   |         |         |
| FY 2011 Accomplishments:<br>Integrate software defined receiver.   |  |  |   |         |         |
| Title: Next Generation Signals (TOS)   |  |  | -   | 1.232   | -       |
| Articles:  |  |  |   | 0       |         |
| Description: Develop next generation signals (TOS)   |  |  |   |         |         |
| FY 2012 Plans:<br>Develop next generation signals (TOS)  |  |  |   |         |         |
| Title: Precision Geo-Location  |  |  | -   | 4.312   | -       |
| Articles:  |  |  |   | 0       |         |
| Description: Develop Geo-location capability for the Prophet Enhanced system under P3I requirements.                             |  |  |   |         |         |
| FY 2012 Plans:<br>Develop Geo-location capability for the Prophet Enhanced system under P3I requirements.                        |  |  |   |         |         |
| Title: Real-time Signal Processing architectural framework (software defined capabilities)                                       |  |  | -   | 3.378   | 4.707   |
| Articles:  |  |  |   | 0       |         |
| Description: Develop Real-time Signal Processing architectural framework (software defined capabilities).                        |  |  |   |         |         |
| FY 2012 Plans:<br>Develop Real-time Signal Processing architectural framework (software defined capabilities).                   |  |  |   |         |         |
| FY 2013 Plans:   |  |  |   |         |         |

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| Exhibit R-2A, RDT&E Project Justification: PB 2013 Army  |         |         |                 |  |                  |         |         |   | DATE: February 2012 |                     |            |
| APPROPRIATION/BUDGET ACTIVITY<br>2040: Research, Development, Test & Evaluation, Army<br>BA 5: Development & Demonstration (SDD) |         |         |                 | R-1 ITEM NOMENCLATURE<br>PE 0304270A: Electronic Warfare Development |                  |         |         | PROJECT<br>EW5: ELECTRONIC WARFARE<br>DEVELOPMENT - MIP |                     |                     |            |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)   |         |         |                 |  |                  |         |         |   | FY 2011             | FY 2012             | FY 2013    |
| Develop Real-time Signal Processing architectural framework (software defined capabilities).                                     |         |         |                 |  |                  |         |         |   |                     |                     |            |
| Title: System Integration Lab (SIL)  |         |         |                 | Articles:  |                  |         |         | -   | 1.500<br>0          | 1.000               |            |
| Description: Stand Up SIL  |         |         |                 |  |                  |         |         |   |                     |                     |            |
| FY 2012 Plans:<br>Stand Up SIL   |         |         |                 |  |                  |         |         |   |                     |                     |            |
| FY 2013 Plans:<br>Initiate operations of SIL   |         |         |                 |  |                  |         |         |   |                     |                     |            |
| Title: Next Generation Signals   |         |         |                 |  |                  |         |         | -   | -                   | 4.734               |            |
| Description: Prophet P3I effort  |         |         |                 |  |                  |         |         |   |                     |                     |            |
| FY 2013 Plans:<br>Prophet P3I effort   |         |         |                 |  |                  |         |         |   |                     |                     |            |
| Accomplishments/Planned Programs Subtotals   |         |         |                 |  |                  |         |         |   | 10.090              | 10.422              | 10.441     |
| C. Other Program Funding Summary (\$ in Millions)  |         |         |                 |  |                  |         |         |   |                     |                     |            |
| Line Item  | FY 2011 | FY 2012 | FY 2013<br>Base | FY 2013<br>OCO   | FY 2013<br>Total | FY 2014 | FY 2015 | FY 2016   | FY 2017             | Cost To<br>Complete | Total Cost |
| • PE 654270 L12: Electronic Warfare Development L12 (RDT&E)  |         |         |                 |  |                  |         |         |   |                     |                     |            |
| • SSN BZ7326: Prophet Ground (OPA)   | 83.265  | 72.041  | 48.797          |  | 48.797           |         | 59.906  | 57.770  | 52.579              | Continuing          | Continuing |
| • SSN 9751: Special Purpose Systems (MIP OPA) (Prophet Only)   | 6.842   | 9.163   | 2.412           |  | 2.412            |         | 1.231   | 1.153   | 2.152               | Continuing          | Continuing |
| • PE 305288G: Defense Cryptological Program for Prophet (MIP) (RDT&E)  | 1.062   | 3.864   | 0.754           |  | 0.754            |         |         |   |                     | Continuing          | Continuing |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Army  |  | <b>DATE:</b> February 2012   |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>2040: <i>Research, Development, Test &amp; Evaluation, Army</i><br>BA 5: <i>Development &amp; Demonstration (SDD)</i>   | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0304270A: <i>Electronic Warfare Development</i> | <b>PROJECT</b><br>EW5: <i>ELECTRONIC WARFARE</i><br><i>DEVELOPMENT - MIP</i> |
| <b><u>D. Acquisition Strategy</u></b><br><p>The Prophet R&amp;D Acquisition Strategy is structured to optimize system capability while reducing risk and streamlining business and engineering processes. PE entered production in 2QFY09 via Full and Open competition. The PE contract supports R&amp;D and other developmental work under a Cost-Plus effort. The PE contract also supports production and sustainment under Firm-Fixed-Price and Indefinite-Delivery Indefinite-Quantity. The PE contract will be used to maintain the operational relevancy of PE systems in a dynamic threat environment.</p> |  |  |
| <b><u>E. Performance Metrics</u></b><br><p>Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.</p>   |  |  |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Army  |                              |                                   |                              |   |               |                 |               |  |               |                  | DATE: February 2012 |            |                                |
|---|------------------------------|-----------------------------------|------------------------------|---|---------------|-----------------|---------------|--|---------------|------------------|---------------------|------------|--------------------------------|
| APPROPRIATION/BUDGET ACTIVITY   |                              |                                   |                              | R-1 ITEM NOMENCLATURE                       |               |                 |               | PROJECT                                      |               |                  |                     |            |                                |
| 2040: Research, Development, Test & Evaluation, Army<br>BA 5: Development & Demonstration (SDD) |                              |                                   |                              | PE 0304270A: Electronic Warfare Development |               |                 |               | EW5: ELECTRONIC WARFARE<br>DEVELOPMENT - MIP |               |                  |                     |            |                                |
| Management Services (\$ in Millions)  |                              |                                   |                              | FY 2012                                     |               | FY 2013<br>Base |               | FY 2013<br>OCO                               |               | FY 2013<br>Total |                     |            |                                |
| Cost Category Item  | Contract<br>Method<br>& Type | Performing<br>Activity & Location | Total Prior<br>Years<br>Cost | Cost  | Award<br>Date | Cost            | Award<br>Date | Cost   | Award<br>Date | Cost             | Cost To<br>Complete | Total Cost | Target<br>Value of<br>Contract |
| Program Management  | Various                      | PM Electronic Warfare:APG, MD     | -                            | 0.181                                       |               | 0.181           |               | -  |               | 0.181            | Continuing          | Continuing | Continuing                     |
| Subtotal  |                              |                                   | -                            | 0.181                                       |               | 0.181           |               | -  |               | 0.181            |                     |            |                                |
| Product Development (\$ in Millions)  |                              |                                   |                              | FY 2012                                     |               | FY 2013<br>Base |               | FY 2013<br>OCO                               |               | FY 2013<br>Total |                     |            |                                |
| Cost Category Item  | Contract<br>Method<br>& Type | Performing<br>Activity & Location | Total Prior<br>Years<br>Cost | Cost  | Award<br>Date | Cost            | Award<br>Date | Cost   | Award<br>Date | Cost             | Cost To<br>Complete | Total Cost | Target<br>Value of<br>Contract |
| Software SIL  | C/FP                         | GD C4 Systems:Scottsdale, AZ      | 0.889                        | -   |               | -               |               | -  |               | -                | 0.000               | 0.889      | 0.000                          |
| Radio/Receiver Inegration (integrate software defined receiver)                                 | C/FP                         | GD C4 Systems:Scottsdale, AZ      | 4.037                        | -   |               | -               |               | -  |               | -                | Continuing          | Continuing | Continuing                     |
| Integrate Electronic Warfare Systems  | C/FP                         | TBD:TBD                           | 4.900                        | -   |               | -               |               | -  |               | -                | Continuing          | Continuing | Continuing                     |
| Next Generation Signals (TOS)   | C/FP                         | GD C4 Systems:Scottsdale, AZ      | -                            | 1.200                                       |               | -               |               | -  |               | -                | Continuing          | Continuing | Continuing                     |
| Precision Geo-Location  | C/FP                         | GD C4 Systems:Scottsdale, AZ      | -                            | 4.200                                       |               | -               |               | -  |               | -                | Continuing          | Continuing | Continuing                     |
| Real-time Signal Processing architectural framework (software defined capabilities)             | C/CPIF                       | GD C4 Systems:Scottsdale, AZ      | -                            | 3.291                                       |               | 3.412           |               | -  |               | 3.412            | Continuing          | Continuing | Continuing                     |
| Next Generation Signals   | C/FP                         | GD C4 Systems:Scottsdale, AZ      | -                            | -   |               | 3.400           |               | -  |               | 3.400            | Continuing          | Continuing | Continuing                     |
| Subtotal  |                              |                                   | 9.826                        | 8.691                                       |               | 6.812           |               | -  |               | 6.812            |                     |            |                                |
| Support (\$ in Millions)  |                              |                                   |                              | FY 2012                                     |               | FY 2013<br>Base |               | FY 2013<br>OCO                               |               | FY 2013<br>Total |                     |            |                                |
| Cost Category Item  | Contract<br>Method<br>& Type | Performing<br>Activity & Location | Total Prior<br>Years<br>Cost | Cost  | Award<br>Date | Cost            | Award<br>Date | Cost   | Award<br>Date | Cost             | Cost To<br>Complete | Total Cost | Target<br>Value of<br>Contract |
| Matrix Support  | Various                      | I2WD:APG, MD                      | 0.264                        | 0.050                                       |               | 0.448           |               | -  |               | 0.448            | Continuing          | Continuing | Continuing                     |

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| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2013 Army   |  |  |  |  |  |  |  |  |  |  | <b>DATE:</b> February 2012 |  |  |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>2040: <i>Research, Development, Test &amp; Evaluation, Army</i><br>BA 5: <i>Development &amp; Demonstration (SDD)</i> |  |  |  | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0304270A: <i>Electronic Warfare Development</i> |  |  |  | <b>PROJECT</b><br>EW5: <i>ELECTRONIC WARFARE DEVELOPMENT - MIP</i> |  |  |                            |  |  |

  

|                                 |                                   |   |                               |                |                   |                     |                   |                    |                   |                      |                         |                   |                                 |
|---------------------------------|-----------------------------------|---|-------------------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| <b>Support (\$ in Millions)</b> |                                   |   |                               | <b>FY 2012</b> |                   | <b>FY 2013 Base</b> |                   | <b>FY 2013 OCO</b> |                   | <b>FY 2013 Total</b> |                         |                   |                                 |
| <b>Cost Category Item</b>       | <b>Contract Method &amp; Type</b> | <b>Performing Activity &amp; Location</b> | <b>Total Prior Years Cost</b> | <b>Cost</b>    | <b>Award Date</b> | <b>Cost</b>         | <b>Award Date</b> | <b>Cost</b>        | <b>Award Date</b> | <b>Cost</b>          | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| System Integration Lab          | Various                           | I2WD:APG, MD                              | -                             | 1.500          |                   | 1.000               |                   | -                  |                   | 1.000                | Continuing              | Continuing        | Continuing                      |
| <b>Subtotal</b>                 |                                   |   | 0.264                         | 1.550          |                   | 1.448               |                   | -                  |                   | 1.448                |                         |                   |                                 |

  

|   |                                   |   |                               |                |                   |                     |                   |                    |                   |                      |                         |                   |                                 |
|---|-----------------------------------|---|-------------------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| <b>Test and Evaluation (\$ in Millions)</b> |                                   |   |                               | <b>FY 2012</b> |                   | <b>FY 2013 Base</b> |                   | <b>FY 2013 OCO</b> |                   | <b>FY 2013 Total</b> |                         |                   |                                 |
| <b>Cost Category Item</b>                   | <b>Contract Method &amp; Type</b> | <b>Performing Activity &amp; Location</b> | <b>Total Prior Years Cost</b> | <b>Cost</b>    | <b>Award Date</b> | <b>Cost</b>         | <b>Award Date</b> | <b>Cost</b>        | <b>Award Date</b> | <b>Cost</b>          | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| Prepare and Conduct Delta Testing           | MIPR                              | EPG/AEC:Huachuca, AZ                      | -                             | -              |                   | 2.000               |                   | -                  |                   | 2.000                | Continuing              | Continuing        | Continuing                      |
| <b>Subtotal</b>                             |                                   |   | -                             | -              |                   | 2.000               |                   | -                  |                   | 2.000                |                         |                   |                                 |

  

|                            |  |  |                               |                |  |                     |  |                    |  |                      |                         |                   |                                 |
|----------------------------|--|--|-------------------------------|----------------|--|---------------------|--|--------------------|--|----------------------|-------------------------|-------------------|---------------------------------|
|                            |  |  | <b>Total Prior Years Cost</b> | <b>FY 2012</b> |  | <b>FY 2013 Base</b> |  | <b>FY 2013 OCO</b> |  | <b>FY 2013 Total</b> | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| <b>Project Cost Totals</b> |  |  | 10.090                        | 10.422         |  | 10.441              |  | -                  |  | 10.441               |                         |                   |                                 |

  

**Remarks**

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|  |  |  |  |  |  |   |  |  |  |  |  |                         |  |  |  |
|--|--|--|--|--|--|---|--|--|--|--|--|-------------------------|--|--|--|
| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Army    |  |  |  |  |  |   |  |  |  |  |  | DATE: February 2012     |  |  |  |
| APPROPRIATION/BUDGET ACTIVITY                        |  |  |  |  |  | R-1 ITEM NOMENCLATURE                       |  |  |  |  |  | PROJECT                 |  |  |  |
| 2040: Research, Development, Test & Evaluation, Army |  |  |  |  |  | PE 0304270A: Electronic Warfare Development |  |  |  |  |  | EW5: ELECTRONIC WARFARE |  |  |  |
| BA 5: Development & Demonstration (SDD)              |  |  |  |  |  |   |  |  |  |  |  | DEVELOPMENT - MIP       |  |  |  |

|  | FY 2011 |   |   |   | FY 2012 |   |   |   | FY 2013 |   |   |   | FY 2014 |   |   |   | FY 2015 |   |   |   | FY 2016 |   |   |   | FY 2017 |   |   |   |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
|  | 1       | 2 | 3 | 4 | 1       | 2 | 3 | 4 | 1       | 2 | 3 | 4 | 1       | 2 | 3 | 4 | 1       | 2 | 3 | 4 | 1       | 2 | 3 | 4 | 1       | 2 | 3 | 4 |
| Prophet Control/Prophet Analytic Cell Production |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Delta Testing - P3I (2013)                       |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Delta Testing - P3I (2015)                       |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Delta Testing (2017)                             |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |



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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Army   |  |  | <b>DATE:</b> February 2012 |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>2040: <i>Research, Development, Test &amp; Evaluation, Army</i><br>BA 5: <i>Development &amp; Demonstration (SDD)</i> | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0304270A: <i>Electronic Warfare Development</i> | <b>PROJECT</b><br>EW5: <i>ELECTRONIC WARFARE DEVELOPMENT - MIP</i> |                            |

Schedule Details

| Events   | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| Prophet Control/Prophet Analytic Cell Production | 4       | 2011 | 4       | 2015 |
| Delta Testing - P3I (2013)                       | 2       | 2013 | 2       | 2013 |
| Delta Testing - P3I (2015)                       | 2       | 2015 | 2       | 2015 |
| Delta Testing (2017)                             | 2       | 2017 | 2       | 2017 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2013 Army  |         |         |              |  |               |         |         | DATE: February 2012            |         |                  |            |
| APPROPRIATION/BUDGET ACTIVITY<br>2040: Research, Development, Test & Evaluation, Army<br>BA 5: Development & Demonstration (SDD)   |         |         |              | R-1 ITEM NOMENCLATURE<br>PE 0304270A: Electronic Warfare Development |               |         |         | PROJECT<br>EW6: ARAT-TSS - MIP |         |                  |            |
| COST (\$ in Millions)  | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO  | FY 2013 Total | FY 2014 | FY 2015 | FY 2016                        | FY 2017 | Cost To Complete | Total Cost |
| EW6: ARAT-TSS - MIP  | 3.044   | 3.385   | 3.501        | -  | 3.501         | 3.973   | 5.168   | 5.368                          | 5.459   | Continuing       | Continuing |
| Quantity of RDT&E Articles   |         |         |              |  |               |         |         |                                |         |                  |            |
| Note<br>This is not a new start. Program transferred from 0604270A beginning in FY 11 to comply with fully captured Military Intelligence Program (MIP) elements.  |         |         |              |  |               |         |         |                                |         |                  |            |
| A. Mission Description and Budget Item Justification<br>The Army Reprogramming Analysis Team (ARAT) is a Department of the Army established program to develop techniques, methods, tools and architecture to reprogram mission software embedded in Army Force Protection Systems (FPS) and Target Sensing Systems (TSS) in response to changes in threat signatures. The regulatory guidance directing this mission is contained in AR 525-15, AR 525-22, and AR 95-1. Current military operations are conducted in a rapidly changing threat environment, where Improvised Explosive Devices (IEDs), Infra Red (IR) man-portable air defense systems (MANPADS) seekers, radar guided surface-to-air-missiles (SAM), laser guided weapons, anti-helicopter mines, and targeting sensors are proliferating and evolving. Integrated solutions are required to counter increasingly sophisticated Electronic Warfare (EW) threats, and the ARAT reprogramming infrastructure supports the tactical Commander by providing timely rapid-reprogramming, and software/information dissemination for Army supported, Joint, allied service, electronic warfare integrated reprogramming of target acquisition, target engagement, vehicle survivability, and Aircraft Survivability Equipment (ASE). ARAT efforts support Electronic Attack (EA), Electronic Protect (EP) and Electronic Support (ES). The ARAT rapid-reprogramming infrastructure supports tactical requirements for deployed aircraft and ground-based (e.g. CREW) survivability systems including those deployed in the CENTCOM area of responsibility (AOR). ARAT identifies and analyzes threat signature changes which affect FPS and TSS; determines the impact of observed signature changes; creates new mission data software to adapt the system to the changes; disseminates the mission software changes; and provides methods to upload the new mission software into the affected FPS and TSS. Each element within the ARAT infrastructure plays a specific role within the program's rapid reprogramming process, providing the Soldier with the capability to install mission and target identification software at the lowest possible level - maximizing flexibility for tactical commanders. ARAT participates in the operational and developmental test design of Army FPS and TSS, and supports Service and JCS Reprogramming Exercises in all theaters.<br>ARAT Research and Development enables continuing development of: 1) automated threat analysis tools to rapidly detect (flag) threat changes within the intelligence system, 2) tools to minimize the time to develop Mission Data Sets (MDS), 3) tools and technology to minimize the time required to test and validate MDSs, 4) improved communications conduits to transmit mission software changes to field users, and 5) enhanced mission-software uploading tools. These efforts allow for rapid threat analysis, simulation, mission software development, distribution and uploading of mission software changes directly to the supported Soldier. |         |         |              |  |               |         |         |                                |         |                  |            |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)   |         |         |              |  |               |         |         | FY 2011                        | FY 2012 | FY 2013          |            |
| Title: Keeping Pace with the Enemy and Technology  |         |         |              |  |               |         |         | 1.785                          | 2.013   | 2.206            |            |
|  |         |         |              |  |               |         |         | Articles: 0                    | 0       |                  |            |
| Description: Funding is provided for the following effort  |         |         |              |  |               |         |         |                                |         |                  |            |
| FY 2011 Accomplishments:   |         |         |              |  |               |         |         |                                |         |                  |            |

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| Exhibit R-2A, RDT&E Project Justification: PB 2013 Army   |  | DATE: February 2012            |            |         |
| APPROPRIATION/BUDGET ACTIVITY<br>2040: Research, Development, Test & Evaluation, Army<br>BA 5: Development & Demonstration (SDD)  | R-1 ITEM NOMENCLATURE<br>PE 0304270A: Electronic Warfare Development | PROJECT<br>EW6: ARAT-TSS - MIP |            |         |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)  |  | FY 2011                        | FY 2012    | FY 2013 |
| Keeping Pace with the Enemy and Technology - Analysis and Studies for Electro Optics, Infra Red, Ultra Violet (EO/IR/UV) Multi-Spectral FPS and TSS support. In order to keep pace with changing threat and technology ARAT requires assets to better understand the impact of the physical battlefield environment on deployed high-technology sensors and their sustainment. This effort will: 1) study the intelligence data requirements to support MDS development for EO/UV/IR and other multi-spectral sensors for aviation and non-aviation EW systems, 2) Develop government organic knowledge and application-base enabling reprogramming of future systems and 3) Perform requirements analysis and concept development for the reprogramming of multi-spectral FPS and TSS.<br><br><b>FY 2012 Plans:</b><br>Keeping Pace with the Enemy and Technology - Analysis and Studies for Electro Optics, Infra Red, Ultra Violet (EO/IR/UV) Multi-Spectral EW system support. In order to keep pace with changing threat and technology ARAT requires assets to better understand the impact of the physical battlefield environment on deployed high-technology sensors and their sustainment. This effort will: 1) study the intelligence data requirements to support MDS development for EO/UV/IR and other multi-spectral sensors for aviation and non-aviation EW systems, 2) Develop government organic knowledge and application-base enabling reprogramming of future systems and 3) Perform requirements analysis and concept development for the reprogramming of multi-spectral EW systems.Keeping Pace with the Enemy and Technology - Analysis and Studies for Electro Optics, Infra Red, Ultra Violet (EO/IR/UV) Multi-Spectral FPS and TSS support. In order to keep pace with changing threat and technology ARAT requires assets to better understand the impact of the physical battlefield environment on deployed high-technology sensors and their sustainment. This effort will: 1) study the intelligence data requirements to support MDS development for EO/UV/IR and other multi-spectral sensors for aviation and non-aviation EW systems, 2) Develop government organic knowledge and application-base enabling reprogramming of future systems and 3) Perform requirements analysis and concept development for the reprogramming of multi-spectral FPS and TSS.<br><br><b>FY 2013 Plans:</b><br>Keeping Pace with the Enemy and Technology - Analysis and Studies for Electro Optics, Infra Red, Ultra Violet (EO/IR/UV) Multi-Spectral FPS and TSS support. In order to keep pace with changing threat and technology ARAT requires assets to better understand the impact of the physical battlefield environment on deployed high-technology sensors and their sustainment. This effort will: 1) study the intelligence data requirements to support MDS development for EO/UV/IR and other multi-spectral sensors for aviation and non-aviation EW systems, 2) Develop government organic knowledge and application-base enabling reprogramming of future systems and 3) Perform requirements analysis and concept development for the reprogramming of multi-spectral FPS and TSS. |  |                                |            |         |
| Title: Infrastruture Improvements Multispectral<br><br>Articles:<br><br>Description: Funding is provided for the following effort   |  | 0.618<br>0                     | 0.605<br>0 | 0.607   |

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| Exhibit R-2A, RDT&E Project Justification: PB 2013 Army   |  | DATE: February 2012            |            |         |
| APPROPRIATION/BUDGET ACTIVITY<br>2040: Research, Development, Test & Evaluation, Army<br>BA 5: Development & Demonstration (SDD)  | R-1 ITEM NOMENCLATURE<br>PE 0304270A: Electronic Warfare Development | PROJECT<br>EW6: ARAT-TSS - MIP |            |         |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)  |  | FY 2011                        | FY 2012    | FY 2013 |
| <b>FY 2011 Accomplishments:</b><br>Infrastructure improvements for Operational Flight Program (OFP) sustainment environment - Develop and deploy operational flight program (OFP) development environment for Missile Warning Systems (MWS). Determine data and analysis requirements for MANPADS characterization and establish a government-organic analysis and sustainment process to support OFPs and subsequently adapt MWSs to new threats. Currently, no government organic capability exists, increasing the risk that systems can not be readily adapted to changing threats. |  |                                |            |         |
| <b>FY 2012 Plans:</b><br>Infrastructure improvements for Operational Flight Program (OFP) sustainment environment - Develop and deploy operational flight program (OFP) development environment for MWS. Determine data and analysis requirements for MANPADS characterization and establish a government-organic analysis and sustainment process to support OFPs and subsequently adapt MWSs to new threats. Currently, no government organic capability exists, increasing the risk that systems can not be readily adapted to changing threats.                                     |  |                                |            |         |
| <b>FY 2013 Plans:</b><br>Infrastructure improvements for Operational Flight Program (OFP) sustainment environment - Develop and deploy operational flight program (OFP) development environment for MWS. Determine data and analysis requirements for MANPADS characterization and establish a government-organic analysis and sustainment process to support OFPs and subsequently adapt MWSs to new threats. Currently, no government organic capability exists, increasing the risk that systems can not be readily adapted to changing threats.                                     |  |                                |            |         |
| <b>Title:</b> Infrastructure Improvement Radio Frequency General<br><br><b>Articles:</b>  |  | 0.435<br>0                     | 0.540<br>0 | 0.478   |
| <b>Description:</b> Funding is provided for the following effort  |  |                                |            |         |
| <b>FY 2011 Accomplishments:</b><br>Infrastructure improvements (general) - Enhance the ARAT communications architecture to facilitate the transmission of mission software changes to FPS and TSS users, with emphasis on remote user and highly mobile Soldier connectivity. Develop and implement integrated ASE test environment to ensure MDS and aircraft counter-measure (CM) Integration flight test support.  |  |                                |            |         |
| <b>FY 2012 Plans:</b><br>Infrastructure improvements (general) - Enhance the ARAT communications architecture to facilitate the transmission of mission software changes to FPS and TSS users, with emphasis on remote user and highly mobile Soldier connectivity. Develop and implement integrated ASE test environment to ensure MDS and aircraft counter-measure (CM) Integration flight test support.  |  |                                |            |         |
| <b>FY 2013 Plans:</b>   |  |                                |            |         |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Army   |  | <b>DATE:</b> February 2012                   |                |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>2040: <i>Research, Development, Test &amp; Evaluation, Army</i><br>BA 5: <i>Development &amp; Demonstration (SDD)</i>  | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0304270A: <i>Electronic Warfare Development</i> | <b>PROJECT</b><br>EW6: <i>ARAT-TSS - MIP</i> |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>  |  | <b>FY 2011</b>                               | <b>FY 2012</b> |
| Infrastructure improvements (general) - Enhance the ARAT communications architecture to facilitate the transmission of mission software changes to FPS and TSS users, with emphasis on remote user and highly mobile Soldier connectivity. Develop and implement integrated ASE test environment to ensure MDS and aircraft counter-measure (CM) Integration flight test support.  |  |  |                |
| <b>Title:</b> Threat Flagging and Mission Data Set Reprogramming Tool Development<br><br><b>Articles:</b><br><br><b>Description:</b> Funding is provided for the following effort<br><br><b>FY 2011 Accomplishments:</b><br>Threat Flagging and MDS Reprogramming Tool Development - Develop applications for ARAT internal system-specific threat flagging, threat analysis, MDS generation, and MDS testing. Enhance threat flagging (threat performance change detection) and intelligence analytical tools, based on supported systems performance criteria, to rapidly identify and counter emerging and changing threats that adversely affect the performance of FPS and TSS. Create MDS development, testing and validation tools to decrease time from threat-change detection to the distribution of MDS products in order to increase the accuracy and fidelity of threat identification, and reduce the engineering involvement/workload associated with the manually intensive analysis and MDS development processes. Define requirements and develop tools to migrate to a data support infrastructure that employs Next Generation EWIR System (NGES) when the NGES is deployed and the current EWIR system is decommissioned.<br><br><b>FY 2012 Plans:</b><br>Threat Flagging and MDS Reprogramming Tool Development - Develop applications for ARAT internal system-specific threat flagging, threat analysis, MDS generation, and MDS testing. Enhance threat flagging (threat performance change detection) and intelligence analytical tools, based on supported systems performance criteria, to rapidly identify and counter emerging and changing threats that adversely affect the performance of FPS and TSS. Create MDS development, testing and validation tools to decrease time from threat-change detection to the distribution of MDS products in order to increase the accuracy and fidelity of threat identification, and reduce the engineering involvement/workload associated with the manually intensive analysis and MDS development processes. Define requirements and develop tools to migrate to a data support infrastructure that employs Next Generation EWIR System (NGES) when the NGES is deployed and the current EWIR system is decommissioned.<br><br><b>FY 2013 Plans:</b><br>Threat Flagging and MDS Reprogramming Tool Development - Develop applications for ARAT internal system-specific threat flagging, threat analysis, MDS generation, and MDS testing. Enhance threat flagging (threat performance change detection) and intelligence analytical tools, based on supported systems performance criteria, to rapidly identify and counter emerging and changing threats that adversely affect the performance of FPS and TSS. Create MDS development, testing and validation tools to decrease time from threat-change detection to the distribution of MDS products in order to increase the accuracy and fidelity of threat identification, and reduce the engineering involvement/workload associated with the manually intensive analysis and MDS |  | 0.206<br>0                                   | 0.227<br>0     |
|  |  |  | 0.210          |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Army  |  | <b>DATE:</b> February 2012                   |                |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>2040: <i>Research, Development, Test &amp; Evaluation, Army</i><br>BA 5: <i>Development &amp; Demonstration (SDD)</i>   | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0304270A: <i>Electronic Warfare Development</i> | <b>PROJECT</b><br>EW6: <i>ARAT-TSS - MIP</i> |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   |  | <b>FY 2011</b>                               | <b>FY 2012</b> |
| development processes. Define requirements and develop tools to migrate to a data support infrastructure that employs Next Generation EWIR System (NGES) when the NGES is deployed and the current EWIR system is decommissioned.   |  |  |                |
| <b>Accomplishments/Planned Programs Subtotals</b>   |  | 3.044  | 3.385          |
|   |  |  |                |
| <b>C. Other Program Funding Summary (\$ in Millions)</b><br>N/A   |  |  |                |
| <b>D. Acquisition Strategy</b><br>The efforts to be funded in this project will require a combination of systems specific and high-tech knowledge. The contractual services portion for the project will be obtained from both the Communications-Electronics Command (CECOM) Software Engineering Center (SEC) competitive omnibus and the Research, Development and Engineering Command (RDECOM) high tech contracts. |  |  |                |
| <b>E. Performance Metrics</b><br>Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.   |  |  |                |

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### Remarks