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| <b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Defense Threat Reduction Agency   |                    |                |                |                     |  |                      |                |                |                | <b>Date:</b> April 2022 |                         |                   |
|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|----------------|-------------------------|-------------------------|-------------------|
| <b>Appropriation/Budget Activity</b><br>0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide / BA 6: RDT&amp;E Management Support</i> |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0605502BR / <i>Small Business Innovation Research</i> |                      |                |                |                |                         |                         |                   |
| <b>COST (\$ in Millions)</b>   | <b>Prior Years</b> | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023 Base</b> | <b>FY 2023 OCO</b>   | <b>FY 2023 Total</b> | <b>FY 2024</b> | <b>FY 2025</b> | <b>FY 2026</b> | <b>FY 2027</b>          | <b>Cost To Complete</b> | <b>Total Cost</b> |
| Total Program Element  | 95.496             | 14.241         | 0.000          | 0.000               | 0.000  | 0.000                | 0.000          | 0.000          | 0.000          | 0.000                   | Continuing              | Continuing        |
| RA: <i>Information Sciences and Applications</i>   | 95.496             | 14.241         | 0.000          | 0.000               | 0.000  | 0.000                | 0.000          | 0.000          | 0.000          | 0.000                   | Continuing              | Continuing        |

**Note**

Funding for the ongoing SBIR/STTR program is consolidated in this program element during the year of execution.

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

The Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) programs provide the means for stimulating technological innovation in the private sector, strengthens the role of small business in meeting the Department of Defense (DoD) research and development needs; fosters and encourages participation of minority and disadvantaged businesses in technological innovation; and increases the commercial application of the DoD supported research and development results. These efforts are responsive to Public Law 106-554.

**B. Program Change Summary (\$ in Millions)**

|                                     | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023 Base</b> | <b>FY 2023 OCO</b> | <b>FY 2023 Total</b> |
|-------------------------------------|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget         | 0.000          | 0.000          | 0.000               | 0.000              | 0.000                |
| Current President's Budget          | 14.241         | 0.000          | 0.000               | 0.000              | 0.000                |
| Total Adjustments                   | 14.241         | 0.000          | 0.000               | 0.000              | 0.000                |
| • Congressional General Reductions  | -              | -              |                     |                    |                      |
| • Congressional Directed Reductions | -              | -              |                     |                    |                      |
| • Congressional Rescissions         | -              | -              |                     |                    |                      |
| • Congressional Adds                | -              | -              |                     |                    |                      |
| • Congressional Directed Transfers  | -              | -              |                     |                    |                      |
| • Reprogrammings                    | -              | -              |                     |                    |                      |
| • SBIR/STTR Transfer                | 14.241         | 0.000          |                     |                    |                      |

**Change Summary Explanation**

Funding for the SBIR program is consolidated in this program element during the year of execution.

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|   |                    |                |                |                     |  |                      |                |   |                |                         |                         |                   |
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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Defense Threat Reduction Agency |                    |                |                |                     |  |                      |                |   |                | <b>Date:</b> April 2022 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>0400 / 6  |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0605502BR / <i>Small Business Innovation Research</i> |                      |                | <b>Project (Number/Name)</b><br>RA / <i>Information Sciences and Applications</i> |                |                         |                         |                   |
| <b>COST (\$ in Millions)</b>  | <b>Prior Years</b> | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023 Base</b> | <b>FY 2023 OCO</b>   | <b>FY 2023 Total</b> | <b>FY 2024</b> | <b>FY 2025</b>  | <b>FY 2026</b> | <b>FY 2027</b>          | <b>Cost To Complete</b> | <b>Total Cost</b> |
| RA: <i>Information Sciences and Applications</i>  | 95.496             | 14.241         | 0.000          | 0.000               | 0.000  | 0.000                | 0.000          | 0.000   | 0.000          | 0.000                   | Continuing              | Continuing        |
| Quantity of RDT&E Articles  | -                  | -              | -              | -                   | -  | -                    | -              | -   | -              | -                       |                         |                   |

**Note**

\*Funding is not allocated until the year-of-execution. Program Element 0605502BR “Small Business Innovation Research (SBIR)” is used to report year-end execution. FY 2022 and FY 2023 plans are provided based on estimated SBIR/STTR funding levels to be determined in accordance with the law and relative to final Agency RDT&E portfolio appropriations.

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

The Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) programs provide the means for stimulating technological innovation in the private sector and strengthens the role of small business in meeting the Department of Defense (DoD) research and development needs. These programs foster and encourage participation of minority and disadvantaged businesses in technological innovation and increase the commercial application of DoD supported research and development results. These efforts are responsive to Public Law 106-554 Small Business Act (15 U.S.C. 638).

**B. Accomplishments/Planned Programs (\$ in Millions)**

|  | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023 Base</b> | <b>FY 2023 OCO</b> | <b>FY 2023 Total</b> |
|--|----------------|----------------|---------------------|--------------------|----------------------|
| <b>Title:</b> RA: Information Sciences and Applications  | 14.241         | 0.000          | 0.000               | 0.000              | 0.000                |
| <b>Description:</b> This project provides the means for stimulating technological innovation in the private sector; strengthens the role of small business in meeting the DoD research and development needs; fosters and encourages participation of minority and disadvantaged businesses in technological innovation; and increases the commercial application of the DoD supported research and development results. These efforts are responsive to Public Law 106-554. |                |                |                     |                    |                      |
| <b>FY 2022 Plans:</b><br>Nine Small Business Innovation Research projects (\$12.291M) are planned to address:<br><br>- Developing radiation dose advisory technology; developing pedigree reconstruction capabilities to identify terrorist networks; for the use of transient electric field measurements as test diagnostics; for nuclear scintillation mitigation by matched channel; and radiation-resistant and temperature-insensitive solid state photomultipliers.   |                |                |                     |                    |                      |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Defense Threat Reduction Agency |  | <b>Date:</b> April 2022   |
| <b>Appropriation/Budget Activity</b><br>0400 / 6  | <b>R-1 Program Element (Number/Name)</b><br>PE 0605502BR / <i>Small Business Innovation Research</i> | <b>Project (Number/Name)</b><br>RA / <i>Information Sciences and Applications</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>  | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023 Base</b> | <b>FY 2023 OCO</b> | <b>FY 2023 Total</b> |
|--|----------------|----------------|---------------------|--------------------|----------------------|
| <p>- SBIR research projects will also address technology concepts for distributed, cooperative, learning for subterranean robotic autonomous systems; global nano aerial terrestrial sensing for radiation/nuclear detection; applying lifecycle management and continuous integration for pre-exascale high performance computing architectures; advanced optics based magnetic field diagnostics for nuclear weapon effects testing; developing algorithms that can locally link radiation detectors to enhance identification/ localization capability; augmented reality and virtual reality capabilities; and develop modern low visibility Radio Frequency (RF) capabilities.</p> <p>Additional research areas (\$2.258M) will be determined in March 2022 in conjunction with the upcoming OSD Broad Agency Announcement.</p> <p>Five STTR Innovation Research Technology projects (\$2.046M) are to develop technology for synthetic aperture radar image generation data augmentation, develop numeric-informed neural networks, and develop mathematical models to build multi-radiation detector algorithms. An additional \$1.100M project will be down-selected from current on-going research efforts.</p> <p><b>FY 2023 Base Plans:</b><br/>SBIR projects (\$2.900M) will address requirements for areas of research that will be selected in March 2022 and others later in the year in accordance with the OSD SBIR FY 2022.3 Broad Agency Announcements.</p> <p>More mature technology projects (\$11.100M) will focus in the areas of Artificial Intelligence/Machine Learning edge computing-based solutions in forward deployed cell phones and associated equipment; technology for distributed and cooperative learning for subterranean robotic autonomous systems; global nanotechnology aerial/terrestrial sensing for radiation/nuclear detection technology; pre-exascale high performance computing architectures; advanced optics-based magnetic field diagnostics for nuclear weapon effects testing; developing algorithms that can locally link radiation detectors (of different resolutions) to enhance identification/localization capability; augmented reality and virtual reality capabilities; and, modernized low-visibility RF capabilities.</p> <p>STTR project (\$2.000 million) requirements are yet to be determined. These topics will be developed in accordance with the overarching OSD Broad Agency Announcements.</p> <p><b>FY 2023 OCO Plans:</b><br/>N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> |                |                |                     |                    |                      |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Defense Threat Reduction Agency |  | <b>Date:</b> April 2022   |
| <b>Appropriation/Budget Activity</b><br>0400 / 6  | <b>R-1 Program Element (Number/Name)</b><br>PE 0605502BR / <i>Small Business Innovation Research</i> | <b>Project (Number/Name)</b><br>RA / <i>Information Sciences and Applications</i> |

|   |                |                |                     |                    |                      |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b> | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023 Base</b> | <b>FY 2023 OCO</b> | <b>FY 2023 Total</b> |
| N/A   |                |                |                     |                    |                      |
| <b>Accomplishments/Planned Programs Subtotals</b>           | 14.241         | 0.000          | 0.000               | 0.000              | 0.000                |

|   |                |                |                     |                    |                      |                |                |                |                |                         |                   |
|---|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| <b>C. Other Program Funding Summary (\$ in Millions)</b>  |                |                |                     |                    |                      |                |                |                |                |                         |                   |
| <b>Line Item</b>  | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023 Base</b> | <b>FY 2023 OCO</b> | <b>FY 2023 Total</b> | <b>FY 2024</b> | <b>FY 2025</b> | <b>FY 2026</b> | <b>FY 2027</b> | <b>Cost To Complete</b> | <b>Total Cost</b> |
| • 13/0602134BR: <i>Improvised Threat Reduction Applied Research</i>   | 2.449          | 0.000          | 0.000               | 0.000              | 0.000                | 0.000          | 0.000          | 0.000          | 0.000          | 0.000                   | 2.449             |
| • 25/0602718BR: <i>Counter Weapons of Mass Destruction Applied Research</i>                                   | 36.288         | 48.112         | 32.670              | 0.000              | 32.670               | 39.918         | 40.914         | 32.639         | 33.543         | Continuing              | Continuing        |
| • 34/0603160BR: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>                    | 50.959         | 84.660         | 78.991              | 0.000              | 78.991               | 84.775         | 86.706         | 84.214         | 84.684         | Continuing              | Continuing        |
| • 98/0604134BR: <i>Counter Improvised- Threat Technology Demonstration, Prototype Development and Testing</i> | 6.833          | 0.000          | 0.000               | 0.000              | 0.000                | 0.000          | 0.000          | 0.000          | 0.000          | 0.000                   | 6.833             |
| • 105/0604551BR: <i>Catapult</i>  | 0.000          | 7.166          | 7.130               | 0.000              | 7.130                | 7.328          | 7.475          | 7.625          | 7.777          | Continuing              | Continuing        |

**Remarks**

|                                |
|--------------------------------|
| <b>D. Acquisition Strategy</b> |
| N/A                            |