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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

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| <b>Appropriation/Budget Activity</b><br>3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i> | <b>R-1 Program Element (Number/Name)</b><br>PE 0305179F / <i>Integrated Broadcast Service (IBS)</i> |
|--|---|

| COST (\$ in Millions)                             | Prior Years | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | FY 2024 | FY 2025 | FY 2026 | FY 2027 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element                             | -           | 8.848   | 21.335  | 22.123       | 0.000       | 22.123        | 21.539  | 18.754  | 19.069  | 19.492  | Continuing       | Continuing |
| 674779: <i>Integrated Broadcast Service (IBS)</i> | -           | 8.848   | 21.335  | 22.123       | 0.000       | 22.123        | 21.539  | 18.754  | 19.069  | 19.492  | Continuing       | Continuing |
| Quantity of RDT&E Articles                        | -           | -       | -       | -            | -           | -             | -       | -       | -       | -       |                  |            |

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

The IBS fulfills the warfighter's requirements for worldwide threat warning and situational awareness information with timely production and simultaneous dissemination of Intelligence, Surveillance, and Reconnaissance (ISR) derived combat information. It also provides target tracking data to support threat avoidance, targeting, force protection, and situational awareness. This information is continually refined in near real time by strategic, operational and tactical sensors.

IBS development efforts are comprised of the following:

- A Common Interactive Broadcast (CIB) on UHF (Ultra High Frequency) satellite channel using a Common Message Format (CMF) and a Military Standard (MIL-STD) Demand Assigned Multiple Access (DAMA) compliant waveform and Line of Sight (LOS) using the Wideband Networking Waveform (WNW) and Joint Tactical Terminal (JTT).
- IBS-Network Services (IBS-NS) includes two Global IBS Network Servers (GINS) and four Theater Interface Nodes (TINs) to support the geographic Combatant Commanders (COCOMs), all built to validated warfighter requirements.
- Two GINS receive data from each theater and integrate this data into a worldwide picture available to all network/broadcast users.
- Four regional TINs allow local and out-of-theater users (not directly receiving IBS broadcast) to receive the CIB information broadcast. Additionally, the TIN will receive and inject data into the CIB for producers without access to the theater CIB.

This PE funds the development and/or upgrades of IBS (IBS-NS, CIB, and CMF)

This project will identify and implement an open system architecture that will accommodate growth as the migration continues to cloud hosted enterprise services. Additionally, IBS is a critical data information provider supporting Joint All Domain Command and Control and the emerging requirements for Advanced Battle Management System information exchange requirements.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In PY22 \$00.000M was expended for civilian pay expenses in this program element, and in CY23 \$00.000M is forecasted for civilian pay expenses in this program element.

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This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

| <b>B. Program Change Summary (\$ 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> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget                       | 8.864          | 21.335         | 0.000               | 0.000              | 0.000                |
| Current President's Budget                        | 8.848          | 21.335         | 22.123              | 0.000              | 22.123               |
| Total Adjustments                                 | -0.016         | 0.000          | 22.123              | 0.000              | 22.123               |
| • Congressional General Reductions                | -0.016         | 0.000          |                     |                    |                      |
| • Congressional Directed Reductions               | 0.000          | 0.000          |                     |                    |                      |
| • Congressional Rescissions                       | 0.000          | 0.000          |                     |                    |                      |
| • Congressional Adds                              | 0.000          | 0.000          |                     |                    |                      |
| • Congressional Directed Transfers                | 0.000          | 0.000          |                     |                    |                      |
| • Reprogrammings                                  | 0.000          | 0.000          |                     |                    |                      |
| • SBIR/STTR Transfer                              | 0.000          | 0.000          |                     |                    |                      |
| • Other Adjustments                               | 0.000          | 0.000          | 22.123              | 0.000              | 22.123               |

**Change Summary Explanation**

FY21: 0.016M Congressional Reduction of equal spread across AF RDT&E programs.

FY23: The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY2023 cannot be made in a relevant manner.

| <b>C. Accomplishments/Planned Programs (\$ in Millions)</b>   | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023</b> |
|---|----------------|----------------|----------------|
| <b>Title:</b> Development/upgrades of the Integrated Broadcast Service (IBS-NS, CIB, and CMF)   | 6.854          | 19.341         | 19.823         |
| <b>Description:</b> Development/upgrades of the IBS (IBS-NS, CIB, and CMF)  |                |                |                |
| <b>FY 2022 Plans:</b>   |                |                |                |
| - Synchronizing and integrating with DOD Intelligence Community (IC) Cloud as a potential producer/consumer; the capability will provide a long term searchable data store for IBS information                    |                |                |                |
| - Upgrading the IBS Enterprise-level real-time and analytic views on Global and CCMDs watch floors; further integrate uplink sites with associated TIN by reducing equipment overhead and streamlining data flows |                |                |                |
| - Focusing efforts on upgrades to volumetric increase to provide ten times performance enhancement to throughput, storage and replay to address message volume; this will increase the enterprise output          |                |                |                |

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| <b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force   |  | <b>Date:</b> April 2022   |                |                |
| <b>Appropriation/Budget Activity</b><br>3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>   |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0305179F / <i>Integrated Broadcast Service (IBS)</i> |                |                |
| <b>C. Accomplishments/Planned Programs (\$ in Millions)</b>  |  | <b>FY 2021</b>  | <b>FY 2022</b> | <b>FY 2023</b> |
| <ul style="list-style-type: none"> <li>- Providing resilience to the IBS CIB UHF Broadcast by utilizing the Mobile User Objective System (MUOS) Wideband Code Division Multiple Access (WCDMA) SATCOM payload supporting the receipt of IBS on 1st generation MUOS terminals</li> <li>- Upgrading and connecting the Combatant Command (CCMD) J2 CIB planning function with the CCMD J6 Integrated Waveform planning function</li> <li>- Upgrading the CIB Planning Tool and IBS-NS capability at the CCMDs to allow automated planning to occur for active producers</li> <li>- Developing IBS Thin Client, which provides a light weight application to receive IBS information on mobile devices</li> <li>- Initiating development of the CIB MUOS Group Integration - Many to Many, which achieves IBS Over the Air requirements on the MUOS - WCDMA payload</li> <li>- Upgrading the P5 system health and welfare status at the COCOMs to include Alternate Path status update messages</li> <li>-- Upgrading the resiliency of IBS to include polar coverage</li> <li>- Continuing to upgrade and transition current classified dissemination path to new architecture and enable SCI-level dissemination of IBS data</li> <li>- Enhancing CIB uplink sites to handle operational surge increases and adding capability for edge cloud computing capability</li> <li>- Upgrading the monitoring and control tools to assist in assured dissemination tasks at COCOM uplink watch sites, development and fielding of Downlink Monitoring Element (DME)</li> <li>- Initiating enterprise wide modernization efforts in support of the IBS IS-CDD</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Will continue to synchronize and integrate with DOD Intelligence Community (IC) Cloud as a potential producer/consumer; the capability will provide a long term searchable data store for IBS information</li> <li>- Will continue to upgrade the IBS Enterprise-level real-time and analytic views on Global and CCMDs watch floors; further integrate uplink sites with associated TIN by reducing equipment overhead and streamlining data flows</li> </ul> |  |   |                |                |

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| <b>Appropriation/Budget Activity</b><br>3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>  |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0305179F / <i>Integrated Broadcast Service (IBS)</i> |                |                |
| <b>C. Accomplishments/Planned Programs (\$ in Millions)</b>   |  | <b>FY 2021</b>  | <b>FY 2022</b> | <b>FY 2023</b> |
| <ul style="list-style-type: none"> <li>- Will continue to upgrade volumetric increase to provide ten times performance enhancement to throughput, storage and replay to address message volume; this will increase the enterprise output</li> <li>- Will continue to provide resilience to the IBS CIB UHF Broadcast by utilizing the Mobile User Objective System (MUOS) Wideband Code Division Multiple Access (WCDMA) SATCOM payload supporting the receipt of IBS on 1st generation MUOS terminals</li> <li>- Will continue to upgrade and connect the Combatant Command (CCMD) J2 CIB planning function with the CCMD J6 Integrated Waveform planning function</li> <li>- Will continue to upgrade the CIB Planning Tool and IBS-NS capability at the CCMDs to allow automated planning to occur for active producers</li> <li>- Will continue development of the IBS Thin Client, which provides a light weight application to receive IBS information on mobile devices</li> <li>- Will continue development of the CIB MUOS Group Integration - Many to Many, which achieves IBS Over the Air requirements on the MUOS - WCDMA payload</li> <li>- Will continue to upgrade the P5 system health and welfare status at the COCOMs to include Alternate Path status update messages</li> <li>-- Will continue to upgrade the resiliency of IBS to include polar coverage</li> <li>- Will continue to upgrade and transition current classified dissemination path to new architecture and enable SCI-level dissemination of IBS data</li> <li>- Will continue enhancement of uplink sites to handle operational surge increases</li> <li>- Will continue to upgrade the monitoring and control tools to assist in assured dissemination tasks at COCOM uplink watch sites, development and fielding of Downlink Monitoring Element (DME)</li> </ul> |  |   |                |                |

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|--|---|

| <b>C. Accomplishments/Planned Programs (\$ in Millions)</b>  | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023</b> |
|--|----------------|----------------|----------------|
| - Will continue to provide modernization efforts in support of the IBS IS-CDD  |                |                |                |
| <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b><br>Continued support to IBS Modernization Efforts   |                |                |                |
| <b>Title:</b> Enterprise System Engineering<br><b>Description:</b> Enterprise Systems Engineering/CMF Integration/CIB Integration<br><b>FY 2022 Plans:</b><br>Performing Enterprise Systems Engineering/CMF/CIB Integration<br><b>FY 2023 Plans:</b><br>Will continue to perform Enterprise Systems Engineering/CMF/CIB Integration and including support to Hybrid Cloud at the tactical edge evaluation and software development<br><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b><br>Continued support to IBS Modernization Efforts | 0.994          | 0.994          | 1.300          |
| <b>Title:</b> Test & Evaluation<br><b>Description:</b> Test & Evaluation of the IBS System<br><b>FY 2022 Plans:</b><br>Performing Test and Evaluation activities of the IBS-NS system/subsystems<br><b>FY 2023 Plans:</b><br>Will perform Test and Evaluation activities of the IBS-NS systems/sub-systems components<br><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b><br>N/A   | 1.000          | 1.000          | 1.000          |
| <b>Accomplishments/Planned Programs Subtotals</b>  | 8.848          | 21.335         | 22.123         |

| <b>D. Other Program Funding Summary (\$ in Millions)</b> |                |                |                               |                              |                                |                |                |                |                |                         |                   |
|--|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| <u>Line Item</u>   | <u>FY 2021</u> | <u>FY 2022</u> | <u>FY 2023</u><br><u>Base</u> | <u>FY 2023</u><br><u>OCO</u> | <u>FY 2023</u><br><u>Total</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Cost To Complete</u> | <u>Total Cost</u> |
| • OPAF 03 832070:<br><i>Intelligence Comm Equipment</i>  | 5.727          | 9.145          | 5.724                         | -                            | 5.724                          | 11.535         | 13.928         | 9.117          | 9.317          | Continuing              | Continuing        |

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**D. Other Program Funding Summary (\$ in Millions)**

| <u>Line Item</u> | <u>FY 2021</u> | <u>FY 2022</u> | <u>FY 2023</u><br><u>Base</u> | <u>FY 2023</u><br><u>OCO</u> | <u>FY 2023</u><br><u>Total</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Cost To</u><br><u>Complete</u> | <u>Total Cost</u> |
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|

**Remarks**

**E. Acquisition Strategy**

IBS is in the PEO Digital portfolio and executed by AFLCMC/HBG.  
 IBS uses an Adaptive Life-cycle approach that provides incremental improvement and new capability in 90-day cycles.  
 For contracting efforts, a Single Award IDIQ contract with multiple task orders was awarded to CACI International Inc.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force** **Date:** April 2022

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| <b>Appropriation/Budget Activity</b><br>3600 / 7 | <b>R-1 Program Element (Number/Name)</b><br>PE 0305179F / <i>Integrated Broadcast Service (IBS)</i> | <b>Project (Number/Name)</b><br>674779 / <i>Integrated Broadcast Service (IBS)</i> |
|--|---|--|

| <b>Product Development (\$ in Millions)</b>     |                        |                                |             | FY 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                              | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| Product Development                             | C/CPFF                 | Not specified. : TBD           | -           | -       |            | 8.000   | Oct 2022   | 8.000        | Oct 2023   | -           |            | 8.000         | Continuing       | Continuing | -                        |
| IBS (IBS-NS, CIB, and CMF) Development Upgrades | SS/CPFF                | CACI/OGA/Various : Fairfax, VA | -           | 6.854   | Feb 2021   | 11.341  | Feb 2022   | 11.833       | Feb 2023   | -           |            | 11.833        | Continuing       | Continuing | -                        |
| <b>Subtotal</b>                                 |                        |                                | -           | 6.854   |            | 19.341  |            | 19.833       |            | -           |            | 19.833        | Continuing       | Continuing | N/A                      |

| <b>Support (\$ in Millions)</b>                        |                        |                                |             | FY 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                                     | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| Enterprise Engineering/CMF Integration/CIB Integration | SS/CPFF                | L3Harris : Greenville, TX      | -           | 0.874   | Aug 2021   | 0.864   | Aug 2022   | 0.994        | Mar 2023   | -           |            | 0.994         | Continuing       | Continuing | -                        |
| <b>Subtotal</b>  |                        |                                | -           | 0.874   |            | 0.864   |            | 0.994        |            | -           |            | 0.994         | Continuing       | Continuing | N/A                      |

| <b>Test and Evaluation (\$ in Millions)</b> |                        |                                |             | FY 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| Interoperability and Development Testing    | MIPR                   | JITC : Ft Hauchuca, AZ         | -           | 0.700   | Feb 2021   | 0.700   | Feb 2022   | 1.000        | Feb 2023   | -           |            | 1.000         | Continuing       | Continuing | -                        |
| Responsible Test Organization (RTO)         | PO                     | 45th Test Sqn : Eglin AFB, FL  | -           | 0.300   | Oct 2021   | 0.300   | Oct 2022   | -            |            | -           |            | -             | Continuing       | Continuing | -                        |
| <b>Subtotal</b>                             |                        |                                | -           | 1.000   |            | 1.000   |            | 1.000        |            | -           |            | 1.000         | Continuing       | Continuing | N/A                      |





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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force |   | <b>Date:</b> April 2022  |
| <b>Appropriation/Budget Activity</b><br>3600 / 7                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0305179F / <i>Integrated Broadcast Service (IBS)</i> | <b>Project (Number/Name)</b><br>674779 / <i>Integrated Broadcast Service (IBS)</i> |

Schedule Details

| Events by Sub Project   | Start   |      | End     |      |
|---|---------|------|---------|------|
|   | Quarter | Year | Quarter | Year |
| <b>IBS-NS</b>   |         |      |         |      |
| Develop the monitoring and control tools to assist in assured dissemination | 1       | 2022 | 1       | 2024 |
| Integrate CMF updates into IBS-NS   | 1       | 2022 | 4       | 2025 |
| Enterprise Systems Engineering of IBS (IBS-NS, CIB, and CMF)                | 1       | 2022 | 4       | 2026 |
| Testing and Evaluation of IBS (IBS-NS, CIB, and CMF)                        | 1       | 2022 | 4       | 2026 |
| Develop and integrate IS-CDD requirements                                   | 1       | 2022 | 4       | 2026 |