| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force | | | | | | | | | | | Date: March 2023 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | | | | | R-1 Program Element (Number/Name)<br>PE 1206427SF *I Space Systems Prototype Transitions (SSPT)* | | | | | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2022** | **FY 2023** | **FY 2024 Base** | **FY 2024 OCO** | **FY 2024 Total** | **FY 2025** | **FY 2026** | **FY 2027** | **FY 2028** | **Cost To Complete** | **Total Cost** |
| Total Program Element | - | 101.533 | 166.427 | 145.948 | 0.000 | 145.948 | 130.404 | 96.724 | 77.845 | 58.073 | Continuing | Continuing |
| 644415: *On-Board Resiliency* | - | 0.000 | 50.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| 645601: *Space Defense Capabilities* | - | 96.533 | 111.274 | 140.948 | 0.000 | 140.948 | 130.404 | 96.724 | 77.845 | 58.073 | 0.000 | 711.801 |
| 645611: *Assault Breaker II* | - | 5.000 | 5.153 | 5.000 | 0.000 | 5.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 15.153 |

**Note**

The program in BA4, PE 1206427SF, project 645601, Digital Engineering Interconnected, Cloud-based Ecosystem (DEICE) Tech Stack was a new start in FY 2023, and in FY 2024 has transferred to PE 1203010SF, Space Force Information Technology (IT), Data Analysis, Digital Solutions, project 645620, Digital Engineering to improve transparency.

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

The Space System Prototype Transition (SSPT) Program will identify and address space technology and capability gaps in order to facilitate technology transition to military space prototypes and programs of record. It will conduct a wide array of activities to model, integrate, test, and provide launch integration and support on-orbit testing of prototype technologies. The supported activities include: systems engineering, technology planning, development, demonstrations and testing, as well as modeling, simulations and exercises to support the development and maturation of tactics and procedures. This includes the development and prototyping of critical technology within the Department of Defense, across other government agencies, academic institutions and industry partners that are identified and the necessary systems engineering to effectively employ such systems.

Specifically the SSPT Program establishes a cost-effective framework to identify, mature and transition demonstrations and prototypes to:

-Rapidly address identified technology or capability gaps
-Accelerate the maturation of systems intended for demonstrations/prototypes that enhance/compliment/replace an existing capability
-Support a more reliable, available, maintainable and survivable military space enterprise
-Energize the space industrial base supporting U.S. national security
-Focus S&T Innovation and facilitate its transition to military space programs of record

This program includes projects for Long Duration Propulsive Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapter (ESPA) (LDPE) and its follow-on activities called Rapid On-Orbit Space Technology Evaluation Ring (ROOSTER), Tetra, Blackjack, Quasi-Zenith Satellite System (QZSS)-Hosted Payload (HP), Space Combat Cloud, Digital Engineering Interconnected, Cloud-based Ecosystem (DEICE) Tech Stack, and Assault Breaker II (ABII).

| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force | Date: March 2023 |
|---|---|
| **Appropriation/Budget Activity**<br>3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 1206427SF *I Space Systems Prototype Transitions (SSPT)* |

LDPE and ROOSTER provide a low-cost, rapid, and flexible on-orbit capability to host and deploy numerous prototypes and payloads utilizing excess payload margin available on US Space Force (USSF) launch missions. Each LDPE/ROOSTER on-orbit platform is currently designed to fly multiple payloads per mission, thus fully utilizing launch potential and providing the only recurring rideshare option for prototypes, demonstrations, and experiments to geosynchronous orbit. The LDPE acquisition baseline includes the following mission scope: LDPE-1, -2 and -3A. All missions beyond LDPE-3A are planned as part of ROOSTER activities. The objectives of the ROOSTER project are to enable rapid and cost-effective technology insertion into operational program of records through the on-orbit checkout and testing of prototypes, demonstrations and experimental payloads. Additionally, ROOSTER will work to mature operational concepts and Techniques, Tactics and Procedures (TTPs), such as on-obit refueling, for use within the USSF space enterprise architecture.

Tetra is a project that will provide a training platform for operators to develop and demonstrate TTPs for pathfinder mission sets. This project directly supports the evolution of operations to include space situational awareness and control in alignment with objectives from organizations such as the National Space Test and Training Center (NSTTC) and USSF Test and Evaluation (TE).

Blackjack is a joint technology demonstration project led by DARPA and the Space Force to evaluate military utility and concepts of operation for a Proliferated Low Earth Orbit (P-LEO) satellite constellation. Collaborative missions include developing Intelligence, Surveillance and Reconnaissance (ISR) payloads. The project leverages industry innovation in commercial P-LEO concepts by integrating military payloads onboard commercial commoditized satellite vehicles, demonstrating onboard data processing and autonomous tasking, and transmitting encrypted data through a mesh network of satellites in LEO with the goals of augmenting existing warfighter capability, increasing national security space resiliency, and decreasing per-unit satellite costs.

QZSS-HP is a "pacesetter" hosted payload that is a high priority for the U.S. and Japan, paving the way for future Allied collaborations. It enhances Geostationary Earth Orbit (GEO) Space Domain Awareness (SDA) capabilities over the Eurasian theater and facilitates resilient capabilities in the Space Surveillance Network (SSN).

Space Combat Cloud activity includes enterprise standards definition and synchronizes space-to-space C2 needs across the space community. Activity also includes technology maturation, network definition and prototype planning.

DEICE Tech Stack prototypes and develops the Space Force Digital Engineering Ecosystem (DEE) as a cloud-based, remotely accessible, multilevel security, interconnected infrastructure, providing the technical methodology used to store, access, analyze, and visualize evolving systems' data and models throughout systems' acquisition lifecycles. In FY 2024, this activity has transferred to PE 1203010SF, Space Force Information Technology (IT), Data Analysis, Digital Solutions, project 645620, Digital Engineering to improve transparency.

Space-to-Space Communications activity includes development of communications technologies to synchronize space-to-space C2 and data transport needs across the space community and enable system agnostic communication pathways via a mobile ad-hoc network.

ABII is an all-Service, classified, multi-year effort, led by DARPA, to analyze, research, and recommend material and non-material all domain counter-anti-access/area denial solutions to the Joint Requirements Oversight Council (JROC).

| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force | Date: March 2023 |
|---|---|
| **Appropriation/Budget Activity**<br>3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 1206427SF *I Space Systems Prototype Transitions (SSPT)* |

Space acquisition must respond with speed and agility to emerging adversary threats. Space Systems Command (SSC) has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SSC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose existing capabilities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver SSPT capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 1206392SF and 1206398SF.

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

| B. Program Change Summary ($ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 91.851 | 106.252 | 110.073 | 0.000 | 110.073 |
| Current President's Budget | 101.533 | 166.427 | 145.948 | 0.000 | 145.948 |
| Total Adjustments | 9.682 | 60.175 | 35.875 | 0.000 | 35.875 |
| • Congressional General Reductions | 0.000 | 0.000 | | | |
| • Congressional Directed Reductions | 0.000 | 0.000 | | | |
| • Congressional Rescissions | 0.000 | 0.000 | | | |
| • Congressional Adds | 0.000 | 15.000 | | | |
| • Congressional Directed Transfers | 0.000 | 50.000 | | | |
| • Reprogrammings | 12.316 | 0.000 | | | |
| • SBIR/STTR Transfer | -2.634 | -4.825 | | | |
| • Other Adjustments | 0.000 | 0.000 | 35.875 | 0.000 | 35.875 |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2022 | FY 2023 |
|---|---|---|
| **Project:** 644415: *On-Board Resiliency* | | |
| Congressional Add: *On-Board Resiliency: USSF-SpRCO* | - | 30.000 |
| Congressional Add: *On-Board Resiliency: USSF-SSC* | - | 20.000 |
| Congressional Add Subtotals for Project: 644415 | - | 50.000 |
| Congressional Add Totals for all Projects | - | 50.000 |

**Change Summary Explanation**

FY 2022: -2.634M; SBIR Reduction.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force | Date: March 2023 |
|---|---|
| **Appropriation/Budget Activity**<br>3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 1206427SF *I Space Systems Prototype Transitions (SSPT)* |

FY 2022: +12.316M; Above Threshold Reprogramming (ATR) to address disconnects associated with LDPE-2, BLACKJACK and TETRA.
FY 2023: +10.000M; Space to Space Communications
FY 2023: +5.000M; Rapid prototyping and space qualification of emerging CubeSat technologies
FY 2023: +50.000M; On-Board Resiliency
FY 2023: -4.875M; SBIR Reduction
FY 2024: -0.723M; to realign funding to Appropriation 3410, PE 1207804SF (SAG 13C), for fiscal policy compliance as Space Systems Command (SSC) establishes Headquarters functions and a Chief Information Office (CIO) for integrated cybersecurity.
FY 2024: -13.832M; transfer DE Tech Stack to Space Force IT PE 1203010SF.

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | | Date: March 2023 |
|---|---|---|---|
| Appropriation/Budget Activity<br>3620F / 4 | R-1 Program Element (Number/Name)<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | Project (Number/Name)<br>644415 / *On-Board Resiliency* | |

| COST ($ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 644415: *On-Board Resiliency* | - | 0.000 | 50.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

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

Increase space vehicle survivability against current and future threats such as a suite of on-board capabilities with options for integration into their platforms. Develop technologies to increase satellite and enterprise resiliency such as enabling versatile communication pathways and responding to threats.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 |
|---|---|---|
| ***Congressional Add:*** On-Board Resiliency: USSF-SpRCO<br>***FY 2023 Plans:*** Deliver NSA-certified, next generation encryption modules for space capabilities. KG-505 4.0 is the software upgrade and the KG-505A is the hardware change that broadens scope to meet enterprise cryptography and resilience needs, evolving from the original KG-505 requirements to include quantum resistant solutions for onboard resiliency. The KG-505 4.0 contract is scheduled for award 1 March 2023 and the KG-505A is scheduled for award 15 Apr 2023. The KG-505 4.0 will be included with the new production contract.<br><br>Funds to build out the ground system for resiliency payload and for the system integration support of resilience activities on the ground system. | - | 30.000 |
| ***Congressional Add:*** On-Board Resiliency: USSF-SSC<br>***FY 2023 Plans:*** Develop technologies to increase satellite and enterprise resiliency such as enabling versatile communication pathways and responding to threats. | - | 20.000 |
| **Congressional Adds Subtotals** | - | 50.000 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**Remarks**

**D. Acquisition Strategy**

Continue funding development of prototype communication technology along with associated ground system. Prepare for and execute a source selection leading to a contract award(s) in 4Q FY23 for resiliency technologies. Fund ramp-up of program office including Prime contractor, FFRDC and systems engineering activities.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force | | | Date: March 2023 |
|---|---|---|---|
| Appropriation/Budget Activity<br>3620F / 4 | R-1 Program Element (Number/Name)<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | Project (Number/Name)<br>644415 / *On-Board Resiliency* | |

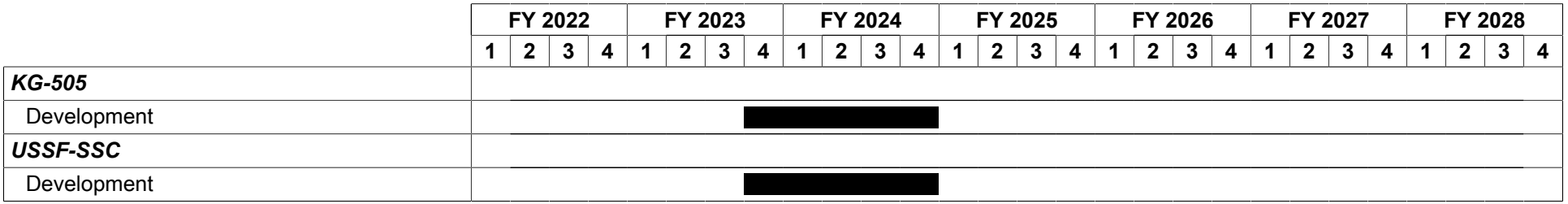
**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2022 Cost | FY 2022 Award Date | FY 2023 Cost | FY 2023 Award Date | FY 2024 Base Cost | FY 2024 Base Award Date | FY 2024 OCO Cost | FY 2024 OCO Award Date | FY 2024 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| USSF-SSC | TBD | VARIOUS : TBD | - | - | | 20.000 | Sep 2023 | - | | - | | - | Continuing | Continuing | - |
| USSF-SpRCO | TBD | GDMS : TBD | - | - | | 30.000 | Sep 2023 | - | | - | | - | Continuing | Continuing | - |
| | | **Subtotal** | - | - | | 50.000 | | - | | - | | - | Continuing | Continuing | N/A |

| | Prior Years | FY 2022 Cost | FY 2022 Award Date | FY 2023 Cost | FY 2023 Award Date | FY 2024 Base Cost | FY 2024 Base Award Date | FY 2024 OCO Cost | FY 2024 OCO Award Date | FY 2024 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | - | - | | 50.000 | | - | | - | | - | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>644415 / *On-Board Resiliency* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>644415 / *On-Board Resiliency* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***KG-505*** | | | | |
| Development | 4 | 2023 | 4 | 2024 |
| ***USSF-SSC*** | | | | |
| Development | 4 | 2023 | 4 | 2024 |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | | Date: March 2023 |
|---|---|---|---|
| Appropriation/Budget Activity<br>3620F / 4 | R-1 Program Element (Number/Name)<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | Project (Number/Name)<br>645601 / *Space Defense Capabilities* | |

| COST ($ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 645601: *Space Defense Capabilities* | - | 96.533 | 111.274 | 140.948 | 0.000 | 140.948 | 130.404 | 96.724 | 77.845 | 58.073 | 0.000 | 711.801 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

**Note**

The program in BA4, PE 1206427SF, project 645601, Digital Engineering Interconnected, Cloud-based Ecosystem (DEICE) Tech Stack was a new start in FY 2023, and in FY 2024 has transferred to PE 1203010SF, Space Force Information Technology (IT), Data Analysis, Digital Solutions, project 645620, Digital Engineering to improve transparency.

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

The Space System Prototype Transition (SSPT) Program will identify and address space technology and capability gaps in order to facilitate technology transition to military space prototypes and programs of record. It will conduct a wide array of activities to model, integrate, test, and provide launch integration and support on-orbit testing of prototype technologies. The supported activities include: systems engineering, technology planning, development, demonstrations and testing, as well as modeling, simulations and exercises to support the development and maturation of tactics and procedures. This includes the development and prototyping of critical technology within the Department of Defense, across other government agencies, academic institutions and industry partners that are identified and the necessary systems engineering to effectively employ such systems.

Specifically the SSPT Program establishes a cost-effective framework to identify, mature and transition demonstrations and prototypes to:

-Rapidly address identified technology or capability gaps
-Accelerate the maturation of systems intended for demonstrations/prototypes that enhance/compliment/replace an existing capability
-Support a more reliable, available, maintainable and survivable military space enterprise
-Energize the space industrial base supporting U.S. national security
-Focus S&T Innovation and facilitate its transition to military space programs of record

This program includes projects for Long Duration Propulsive Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapter (ESPA) (LDPE) and its follow-on activities called Rapid On-Orbit Space Technology Evaluation Ring (ROOSTER), Tetra, Blackjack, Quasi-Zenith Satellite System (QZSS)-Hosted Payload (HP), Space Combat Cloud, Digital Engineering Interconnected, Cloud-based Ecosystem (DEICE) Tech Stack.

LDPE and ROOSTER provide a low-cost, rapid, and flexible on-orbit capability to host and deploy numerous prototypes and payloads utilizing excess payload margin available on US Space Force (USSF) launch missions. Each LDPE/ROOSTER on-orbit platform is currently designed to fly multiple payloads per mission, thus fully utilizing launch potential and providing the only recurring rideshare option for prototypes, demonstrations, and experiments to geosynchronous orbit. The LDPE acquisition baseline includes the following mission scope: LDPE-1, -2 and -3A. All missions beyond LDPE-3A are planned as part of ROOSTER activities. The

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |

objectives of the ROOSTER project are to enable rapid and cost-effective technology insertion into operational program of records through the on-orbit checkout and testing of prototypes, demonstrations and experimental payloads. Additionally, ROOSTER will work to mature operational concepts and Techniques, Tactics and Procedures (TTPs), such as on-obit refueling, for use within the USSF space enterprise architecture.

Tetra is a project that will provide a training platform for operators to develop and demonstrate TTPs for pathfinder mission sets. This project directly supports the evolution of operations to include space situational awareness and control in alignment with objectives from organizations such as the National Space Test and Training Center (NSTTC) and USSF Test and Evaluation.

Blackjack is a joint technology demonstration project led by DARPA and the Space Force to evaluate military utility and concepts of operation for a Proliferated Low Earth Orbit (P-LEO) satellite constellation. Collaborative missions include developing Intelligence, Surveillance and Reconnaissance (ISR) payloads. The project leverages industry innovation in commercial P-LEO concepts by integrating military payloads onboard commercial commoditized satellite vehicles, demonstrating onboard data processing and autonomous tasking, and transmitting encrypted data through a mesh network of satellites in LEO with the goals of augmenting existing warfighter capability, increasing national security space resiliency, and decreasing per-unit satellite costs.

QZSS-HP is a "pacesetter" hosted payload that is a high priority for the U.S. and Japan, paving the way for future Allied collaborations. It enhances Geostationary Earth Orbit (GEO) Space Domain Awareness (SDA) capabilities over the Eurasian theater and facilitates resilient capabilities in the Space Surveillance Network (SSN).

Space Combat Cloud activity includes enterprise standards definition and synchronizes space-to-space C2 needs across the space community. Activity also includes technology maturation, network definition and prototype planning.

DEICE Tech Stack prototypes and develops the Space Force Digital Engineering Ecosystem (DEE) as a cloud-based, remotely accessible, multilevel security, interconnected infrastructure, providing the technical methodology used to store, access, analyze, and visualize evolving systems' data and models throughout systems' acquisition lifecycles. In FY 2024, this activity has transferred to PE 1203010SF, Space Force Information Technology (IT), Data Analysis, Digital Solutions, project 645620, Digital Engineering to improve transparency.

Space-to-Space Communications activity includes development of communications technologies to synchronize space-to-space C2 and data transport needs across the space community and enable system agnostic communication pathways via a mobile ad-hoc network.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| ***Title:*** Technology Maturation and Prototype Development | 57.383 | 55.413 | 61.934 |
| ***Description:*** Plan, develop, test and transition advanced technologies into space system prototypes and capabilities to meet known and emerging threats. Conduct architecture studies, modeling and simulation, technical development, integration and test activities in preparation for transition of critical technologies into prototypes or space programs of record. Develop advanced capabilities for rapid prototyping and integration into space system programs of record and, if requested, to warfighter Urgent Operational Needs (UONs) and Joint Urgent Operational Needs (JUONs). Develop, test and integrate on-orbit platforms for | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| checkout and testing of prototypes and experimental payloads to mature operational concepts and TTPs for future use in the USSF space enterprise architecture. Provide rideshare platform hosting opportunities to geosynchronous orbit.<br><br>***FY 2023 Plans:***<br>- ROOSTER: Continue prototype development, including ground segment and payload integration efforts. Begin Space Vehicle factory test campaign, launch vehicle mission unique integration efforts, and whole of program security accreditation efforts.<br>- Tetra: Continue development of Tetra space vehicles to include development of Tetra-4 through integration and test and Tetra-5 through assembly.<br>- QZSS-HP: Continue the international cooperation with Japan by testing the two SDA with the two Japanese Quasi-Zenith Satellites.<br>- Pursue technology investment to support the space enterprise investment strategy: commercial and allied opportunities; cross mission data transport, proliferated payloads and buses; orbital maneuver; alternative orbits; dynamic communication networks; and Fighting PNT and SATCOM, etc.<br>- Additionally, FY 2023 funding will allow the program to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, etc.<br>- Rapid prototyping and space qualification of emerging CubeSat technologies Congressional Add<br>- On-Orbit Resiliency<br><br>***FY 2024 Plans:***<br>- ROOSTER: Complete prototype development efforts for ROOSTER-4 Space Vehicle. Complete Space Vehicle integration and factory test campaign and launch vehicle mission unique development/integration efforts. Receive whole of program security accreditation efforts required for launch and on-orbit operations. Award ROOSTER-5 contract and begin development of space vehicle platform.<br>- Tetra: Continue development of Tetra space vehicles to include development of Tetra-5 through integration and test and awarding Tetra-6.<br>- QZSS-HP: Continue the international cooperation with Japan by integrating, testing, and launching two SDA hosted payloads via two Japanese Quasi-Zenith Satellites.<br><br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>FY 2024 increased due to projected contract award of ROOSTER-5, and completion of the development of Tetra-5a prototypes and QZSS-HP launch activities. | | | |
| ***Title:*** Prototype Integration, Test and On-Orbit Prototype Demonstration | 13.279 | 18.434 | 32.735 |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|

***Description:*** Provide rideshare opportunities for prototypes and experiments, fund mission-unique payload integration to the rideshare or launch system, and conduct launch base integration, testing and launch operations. Conduct prototype integration and testing into the designated Command and Control system and provide operational support to conduct prototype testing, demonstration and operations.

***FY 2023 Plans:***
- ROOSTER: Continue development of the first ROOSTER platform to support FY 2025 launch and execution of on-orbit operations of prototype and technology demonstration payloads. Begin on-orbit satellite vehicle operations procedures development, conduct operations training, rehearsals, and exercises.
- Tetra: Continue development and integration efforts for Tetra-2,3, 4,and 5 vehicles to include launch and operations of Tetra 3.
- Blackjack: Finalize remaining assembly, integration, and test and provide technical reach back engineering during on-orbit demonstration activities. Conduct technical reviews, integration and testing of prototypes with launch vehicle in support of launch and on-orbit demonstrations. Launch remaining satellites into LEO to complete the constellation, and conduct early orbit testing and full architecture demonstration.
- QZSS-HP: Finish integration and testing of hosted payload prototypes with Japan's QZSS satellite buses and launch vehicles in support of the Quasi-Zenith Satellite-6 launch in FY 2023. Start integration and testing of hosted payload prototypes in support of the Quasi-Zenith Satellite-7 launch in FY 2024.

***FY 2024 Plans:***
- ROOSTER: Complete development and assembly of the first ROOSTER platform (ROOSTER-4) to support FY 2025 launch and execution of on-orbit operations of prototype and technology demonstration payloads. Finalize and integrate ground segment and payloads to enable end-to-end system testing efforts. Finalize on-orbit satellite vehicle operations procedures development and conduct operations training, rehearsals, and exercises. Begin development on an integrated mission plan to support achievement of all prototype payload and space vehicle on-orbit objectives. Establish manifest of prototype and demonstration payloads for ROOSTER-5 mission.
- Tetra: Continue development, integration, launch and operations of Tetra Space Vehicles to include launch and operations of Tetra 1 and 4.
- QZSS-HP: Continue integration and testing in support of a Quasi-Zenith Satellite 7 launch in FY2024. Conclude the integration, test and launch of both hosted payloads in cooperation with the Japanese government. Support on-orbit Developmental Test activities post launch to enable warfighter capabilities for both hosted payloads.

***FY 2023 to FY 2024 Increase/Decrease Statement:***

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| FY 2024 increased due to ROOSTER-4 and Tetra-5a integration activities, ground procedures, training and rehearsals. Increased activities for QZS-6 & 7, and Tetra -3 & 4 integration and launch operations. | | | |
| ***Title:*** Long Duration Propulsive ESPA (LDPE)<br><br>***Description:*** The LDPE platform provides a standard rideshare service for a wide variety of secondary payload options. It features 6 ports and accommodates ten to twelve fixed and/or separable prototype payloads. After the forward payload separates, the LDPE platform separates and propels to mission orbit, typically GEO, approximately 22,000 miles above the earth. The LDPE platform can maneuver to allow prototype/experimental payloads to be dropped off at different locations or remain hosted to the ring based on mission requirements.<br><br>***FY 2023 Plans:***<br>Support the transition of LDPE-1 and LDPE-2 to operational and/or test USSF units to conduct residual operations. Support the launch of LDPE-3A aboard the USSF-67 mission and conduct on-orbit test and demonstration to enable technology maturation of the platform and prototype/experimental payloads. Continue planned 12-month execution of LDPE-3A on-orbit prototype testing, demonstration, and operational support for LDPE hosted payloads.<br><br>***FY 2024 Plans:***<br>Complete planned 12-month execution of LDPE-2 and LDPE-3A on-orbit prototype testing, demonstration, and operational support for LDPE hosted payloads. Support the transition of LDPE-2 and LDPE-3A to operational and/or test USSF units to conduct residual operations.<br><br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>FY 2024 decreased due to completion of LDPE-2 and 3A operational activities. | 25.871 | 7.394 | 1.279 |
| ***Title:*** Digital Engineering Interconnected, Cloud-based Ecosystem (DEICE) Tech Stack<br><br>***Description:*** The Digital Engineering (DE) tech stack provides a common cloud-base, remotely accessible, multi-level security, interconnected infrastructure. The DEICE tech stack provides specialized tools required to perform model based systems engineering (MBSE) activities to create system models, perform simulations, and analyze the results to accelerate the pace of acquisition across the lifecycle from requirements generation, to design reviews, through manufacturing and test, and finally supporting fielding with digital twins. The DEICE tech stack provides the program offices, government stakeholders, and industry partners with a common DE as a Service (DEaaS) capability. The building of the DEICE capabilities will be accomplished using 6-month increments based on Agile management techniques. The needed capabilities will be collected from across the SSC programs and stored in a Product Backlog. Twice a year, this list will be prioritized by an enterprise governance board to direct the activities of adding new capabilities to the Ecosystem. The capabilities will be delivered when competed, tested and approved.<br><br>***FY 2023 Plans:*** | 0.000 | 19.778 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| - Prototype, develop, test and establish the Space Force Digital Engineering as a Service (DEaaS) Environments hosted on the Air Force Cloud One platform for cloud-computing and database storage (compute & store).<br>- Develop and test the minimum viable product (MVP) for DEaaS by providing a virtual desktop with digital engineering tools and collaboration work spaces for the architects and systems engineers of the initial programs; Protected Anti-Jam Tactical SATCOM, Evolved Strategic SATCOM, and Space Integration Office System of Systems Engineering Division.<br>- Continue development and testing of DEaaS with Increment 1 to link to DEaaS Environments with acquisition and operational databases, and add additional programs into the DEaaS Environment from across SSC.<br>- Implement Integration and Operational practices for system monitoring and security procedures.<br>- Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, etc.<br>***FY 2024 Plans:***<br>N/A<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>FY 2024 has transferred to PE 1203010SF, Space Force Information Technology (IT), Data Analysis, Digital Solutions, project 645620, Digital Engineering to improve transparency. | | | |
| ***Title:*** Space-to-Space Communications<br>***Description:*** - Space-to-Space Communications activity includes development of communications technologies to synchronize space-to-space C2 and data transport needs across the space community and enable system agnostic communication pathways via a mobile ad-hoc network.<br>***FY 2023 Plans:***<br>Approve acquisition strategy, release RFP, and begin source selection for terminal development.<br>***FY 2024 Plans:***<br>N/A<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>N/A | - | 10.255 | 0.000 |
| ***Title:*** CubeSat Technologies<br>***Description:*** - Rapid prototyping and space qualification of emerging CubeSat technologies Congressional Add<br>***FY 2023 Plans:*** | - | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| FY 2023 Congressional Add<br>***FY 2024 Plans:***<br>N/A<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>N/A | | | |
| ***Title:*** Solar Power<br>***Description:*** - Solar Power<br>***FY 2023 Plans:***<br>N/A<br>***FY 2024 Plans:***<br>-<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>FY 2024 increased as a new project added to the PE | - | 0.000 | 40.000 |
| ***Title:*** Space-to-Space Communications Follow-on<br>***Description:*** Continue Space-to-Space Communications activity includes development of communications technologies to synchronize space-to-space C2 and data transport needs across the space community and enable system agnostic communication pathways via a mobile ad-hoc network.<br>***FY 2023 Plans:***<br>N/A<br>***FY 2024 Plans:***<br>- Award contracts and begin development activities to enable the future Space-to-Space Data Transport network. Develop high-power amplifiers, low-SWaP ASIC photonic modems, and scalable affordable components for enterprise terminals. Continue elements begun under Space Combat Cloud, to include proliferating the enterprise standards, developing network topology and mesh CONOPS, and evolve concepts, preliminary designs, and enterprise architectural solutions. Continue program office and other related support activities that may include, but are not limited to, studies, technical analyses, experimentation, prototyping, operational testing, and participation/integration into joint warfighting exercises.<br>***FY 2023 to FY 2024 Increase/Decrease Statement:*** | - | 0.000 | 5.000 |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| FY 2024 increased due to the continuations to Space-to-Space Communications FY23 Congressional Add program. | | | |
| **Accomplishments/Planned Programs Subtotals** | 96.533 | 111.274 | 140.948 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**Remarks**

The Tetra-5 contract award included three separate space vehicles, one funded by SSPT (5a) and the other two by AFRL (5b & 5c).

**D. Acquisition Strategy**

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. The SSPT program consists of numerous projects in which the program office will leverage rapid prototyping authorities to the maximum extent possible.

LDPE is an ACAT III program and all systems are on contract and on schedule to achieve their projected Initial Launch Capability (ILC). The acquisition strategy for the follow-on effort to LDPE, called ROOSTER was approved in 2Q FY22. Contract award for ROOSTER-4 is projected for 2Q FY 2023 which supports the ROOSTER-4 ILC of 2nd Quarter FY 2025.

Tetra's acquisition strategy is based on an annualized satellite procurement, development, and launch integration effort. Each Tetra satellite is a unique design intended to further the capabilities of small-satellites and mature emerging technologies. The first two unique Tetras were procured simultaneously as the first award on Space Enterprise Consortium (SpEC) Other Transaction Authority (OTA), followed by two subsequent Tetra missions. Tetra 5a awarded in FY 2022.

For the Digital Engineering Interconnected, Cloud-based Ecosystem (DEICE) Tech Stack effort, the Space Force plans to employ agile software development practices and techniques, such as flexible requirements, frequent user interaction, and rapid delivery. The program will acquire tools and capabilities through an agile-based Rapid Delivery Framework that develops, integrates, and delivers new features and capabilities through 180 day program increments. To provide the cloud-based environment, an existing contract with Cloud One providers will be utilized to provide the software licenses, computer hosting, and cybersecurity. In addition, FFRDCs will provide expertise to develop needed Digital Engineering capabilities as well as optimizing the software configurations to support needed features. Finally, a current SBIR Phase 3 contract will be used to implement new Digital Engineering capabilities based on industry best practices including the management of the Product Backlog, assisting with on-boarding new programs, building training for new users, providing system admin support, and creating scripts and features allowing Digital Engineering activities to be automated.

Space-to-Space Communications acquisition strategy currently being developed will employ competitive procedures to the maximum extent possible.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force | | | Date: March 2023 |
|---|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* | |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2022 Cost | FY 2022 Award Date | FY 2023 Cost | FY 2023 Award Date | FY 2024 Base Cost | FY 2024 Base Award Date | FY 2024 OCO Cost | FY 2024 OCO Award Date | FY 2024 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LDPE-1, 2 & 3A Launch Vehicle Integration & Ops | Various | Various: Various : TBD | - | 21.544 | Jan 2022 | 4.144 | Dec 2022 | 0.267 | Jan 2024 | - | | 0.267 | 0.000 | 25.955 | - |
| LDPE-2, 3A Launch Support Activities | Various | Various : Various : TBD | - | 3.920 | Jan 2022 | 0.780 | Dec 2022 | 1.001 | Nov 2023 | - | | 1.001 | 0.000 | 5.701 | - |
| ROOSTER Development | C/FFP | Northrop Grumman : VA : TBD | - | 5.186 | Jul 2022 | 21.494 | Jan 2023 | 21.269 | Jan 2024 | - | | 21.269 | 0.000 | 47.949 | - |
| ROOSTER Ops, LV, Payload Integration | C/CPFF | Northrop Grumman : VA : TBD | - | 0.500 | Jul 2022 | 7.428 | Jan 2023 | 13.460 | Jan 2024 | - | | 13.460 | 0.000 | 21.388 | - |
| ROOSTER Launch Support Activities | C/Various | Various : Various : TBD | - | - | | - | | 8.472 | Nov 2023 | - | | 8.472 | 0.000 | 8.472 | - |
| Tetra 3 & 4 Development | C/FFP | York Space Systems : CO : TBD | - | 3.509 | Jan 2022 | 0.747 | Jan 2023 | - | | - | | - | 0.000 | 4.256 | - |
| Tetra 5a Development | C/FFP | Orion Space Solutions: CO : TBD | - | 10.300 | Jul 2022 | 10.695 | Feb 2023 | 8.292 | Jan 2024 | - | | 8.292 | 0.000 | 29.287 | - |
| Tetra 6 Development | C/CPAF | TBD : TBD : TBD | - | - | | - | | 9.687 | Jan 2024 | - | | 9.687 | Continuing | Continuing | - |
| Tetra-1, 3, 4 & 5a Prototype Integration, Test & On-Orbit Prototype Demonstration | C/Various | Various : Various : TBD | - | 5.524 | Jan 2022 | 4.772 | Jan 2023 | 7.230 | Jan 2024 | - | | 7.230 | 0.000 | 17.526 | - |
| Tetra-1, 3 & 4 Payload Integration into LDPE/ ROOSTER Ring | C/CPAF | Various : Various : TBD | - | 0.234 | Jan 2022 | 0.851 | Jan 2023 | - | | - | | - | 0.000 | 1.085 | - |
| Blackjack Assembly, Integration & Test | MIPR | Various : Various : TBD | - | 11.597 | Jan 2022 | 2.500 | Jan 2023 | - | | - | | - | 0.000 | 14.097 | - |
| Blackjack Launch/Support Activities | MIPR | Various : Various : TBD | - | 4.900 | Jan 2022 | - | | - | | - | | - | 0.000 | 4.900 | - |
| QZSS-HP Development | Various | Various : Various : TBD | - | 11.921 | Oct 2021 | 13.459 | Nov 2022 | 14.042 | Jan 2024 | - | | 14.042 | 0.000 | 39.422 | - |
| QZSS-HP Launch Support Activities | Various | Various : Various : TBD | - | 2.121 | Apr 2022 | 2.848 | Nov 2022 | 3.573 | Nov 2023 | - | | 3.573 | 0.000 | 8.542 | - |
| Space Combat Cloud | C/Various | Boston : MA : TBD | - | 4.782 | May 2022 | - | | - | | - | | - | 0.000 | 4.782 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2022 Cost | FY 2022 Award Date | FY 2023 Cost | FY 2023 Award Date | FY 2024 Base Cost | FY 2024 Base Award Date | FY 2024 OCO Cost | FY 2024 OCO Award Date | FY 2024 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Digital Engineering Ecosystem | Various | Not specified. : TBD | - | - | | 12.558 | Jan 2023 | - | | - | | - | 0.000 | 12.558 | - |
| Digital Engineering MITRE | TBD | Not specified. : TBD | - | - | | 1.520 | Jan 2023 | - | | - | | - | 0.000 | 1.520 | - |
| Space-to-Space Communications | C/TBD | TBD : TBD : TBD | - | - | | 10.255 | Apr 2023 | - | | - | | - | Continuing | Continuing | - |
| CubeSat | C/TBD | TBD : TBD : TBD | - | - | | 0.000 | Apr 2023 | - | | - | | - | Continuing | Continuing | - |
| Solar Power | C/CPAF | TBD: TBD : TBD | - | - | | - | | 40.000 | Mar 2024 | - | | 40.000 | Continuing | Continuing | - |
| Classiified Effort | C/CPAF | Not specified. : TBD | - | - | | - | | 5.020 | Mar 2024 | - | | 5.020 | Continuing | Continuing | - |
| Technical Mission Analysis | Various | Various : Various : TBD | - | 2.726 | Jan 2022 | 3.329 | Jan 2023 | 3.388 | Jan 2024 | - | | 3.388 | 0.000 | 9.443 | - |
| | | **Subtotal** | - | 88.764 | | 97.380 | | 135.701 | | - | | 135.701 | Continuing | Continuing | N/A |

**Remarks**

The Tetra-5 contract award included three separate space vehicles, one funded by SSPT (5a) and the other two by AFRL (5b & 5c).

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2022 Cost | FY 2022 Award Date | FY 2023 Cost | FY 2023 Award Date | FY 2024 Base Cost | FY 2024 Base Award Date | FY 2024 OCO Cost | FY 2024 OCO Award Date | FY 2024 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Digital Engineering Test Environment | TBD | Not specified. : TBD | - | - | | 5.000 | Jan 2023 | - | | - | | - | Continuing | Continuing | - |
| | | **Subtotal** | - | - | | 5.000 | | - | | - | | - | Continuing | Continuing | N/A |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2022 Cost | FY 2022 Award Date | FY 2023 Cost | FY 2023 Award Date | FY 2024 Base Cost | FY 2024 Base Award Date | FY 2024 OCO Cost | FY 2024 OCO Award Date | FY 2024 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FFRDC | RO | Various : Various : TBD | - | 2.622 | Jan 2022 | 3.528 | Jan 2023 | 1.282 | Jan 2024 | - | | 1.282 | 0.000 | 7.432 | - |
| A&AS | Various | Various : Various : TBD | - | 4.550 | Nov 2021 | 4.977 | Nov 2022 | 3.341 | Nov 2023 | - | | 3.341 | 0.000 | 12.868 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |

**Management Services ($ in Millions)**

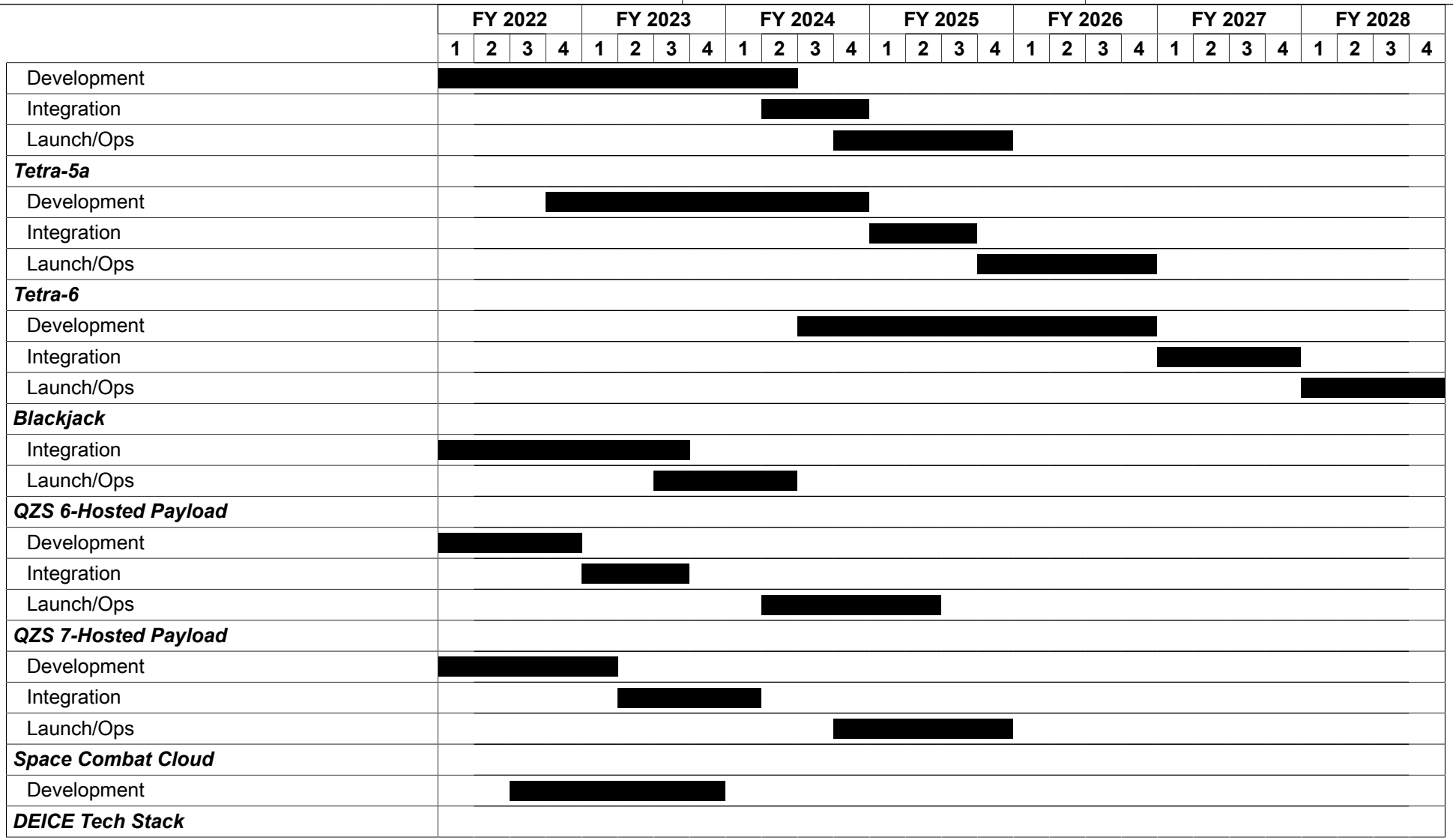
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2022 Cost | FY 2022 Award Date | FY 2023 Cost | FY 2023 Award Date | FY 2024 Base Cost | FY 2024 Base Award Date | FY 2024 OCO Cost | FY 2024 OCO Award Date | FY 2024 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Support | Various | Various : Various : TBD | - | 0.597 | Nov 2021 | 0.389 | Nov 2022 | 0.624 | Jan 2024 | - | | 0.624 | 0.000 | 1.610 | - |
| | | **Subtotal** | - | 7.769 | | 8.894 | | 5.247 | | - | | 5.247 | 0.000 | 21.910 | N/A |

| | Prior Years | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | - | 96.533 | | 111.274 | | 140.948 | | - | | 140.948 | Continuing | Continuing | N/A |

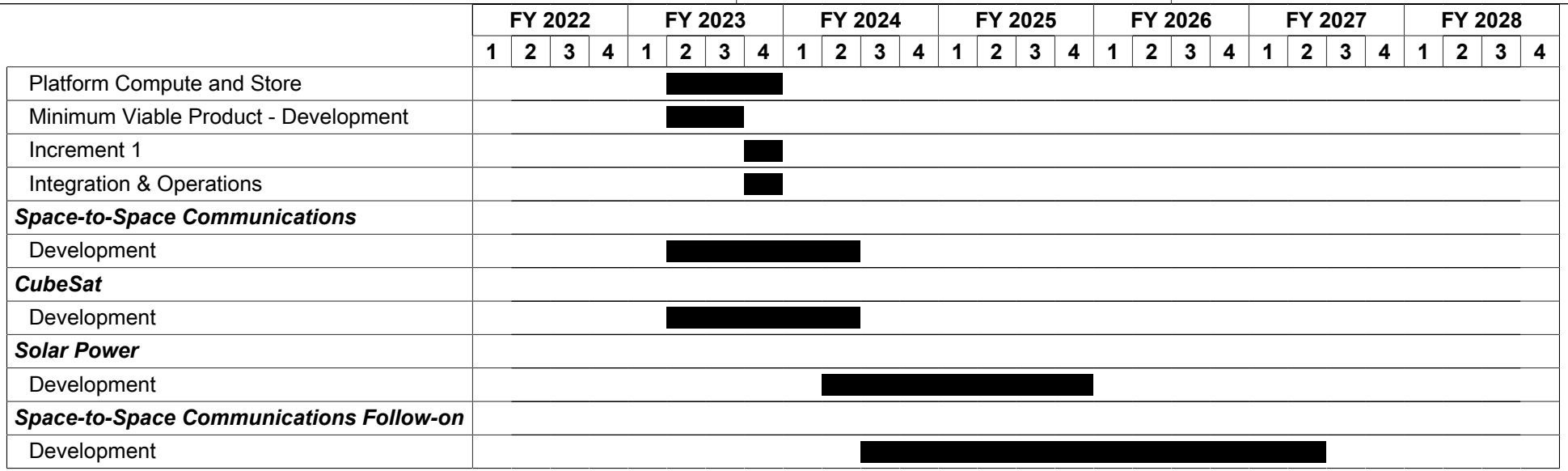
**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |

| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***LDPE-1*** | | | | |
| Launch/Ops | 1 | 2022 | 1 | 2023 |
| ***LDPE-2*** | | | | |
| Integration | 1 | 2022 | 4 | 2023 |
| Launch/Ops | 1 | 2023 | 1 | 2024 |
| ***LDPE-3A*** | | | | |
| Development & Integration | 1 | 2022 | 1 | 2023 |
| Launch/Ops | 2 | 2023 | 2 | 2024 |
| ***ROOSTER-4*** | | | | |
| Development | 4 | 2022 | 2 | 2024 |
| Integration | 2 | 2024 | 2 | 2025 |
| Launch/Ops | 2 | 2025 | 2 | 2026 |
| ***ROOSTER-5*** | | | | |
| Devlopment | 2 | 2024 | 1 | 2026 |
| Integration | 1 | 2026 | 2 | 2027 |
| Launch/Ops | 2 | 2027 | 2 | 2028 |
| ***Tetra-1*** | | | | |
| Launch/Ops | 1 | 2023 | 1 | 2024 |
| ***Tetra-2*** | | | | |
| Development | 1 | 2022 | 4 | 2023 |
| ***Tetra-3*** | | | | |
| Development & Integration | 1 | 2022 | 1 | 2025 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| Launch/Ops | 2 | 2025 | 2 | 2026 |
| ***Tetra-4*** | | | | |
| Development | 1 | 2022 | 2 | 2024 |
| Integration | 2 | 2024 | 4 | 2024 |
| Launch/Ops | 4 | 2024 | 4 | 2025 |
| ***Tetra-5a*** | | | | |
| Development | 4 | 2022 | 4 | 2024 |
| Integration | 1 | 2025 | 3 | 2025 |
| Launch/Ops | 4 | 2025 | 4 | 2026 |
| ***Tetra-6*** | | | | |
| Development | 3 | 2024 | 4 | 2026 |
| Integration | 1 | 2027 | 4 | 2027 |
| Launch/Ops | 1 | 2028 | 4 | 2028 |
| ***Blackjack*** | | | | |
| Integration | 1 | 2022 | 3 | 2023 |
| Launch/Ops | 3 | 2023 | 2 | 2024 |
| ***QZS 6-Hosted Payload*** | | | | |
| Development | 1 | 2022 | 4 | 2022 |
| Integration | 1 | 2023 | 3 | 2023 |
| Launch/Ops | 2 | 2024 | 2 | 2025 |
| ***QZS 7-Hosted Payload*** | | | | |
| Development | 1 | 2022 | 1 | 2023 |
| Integration | 2 | 2023 | 1 | 2024 |
| Launch/Ops | 4 | 2024 | 4 | 2025 |
| ***Space Combat Cloud*** | | | | |

| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645601 / *Space Defense Capabilities* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| Development | 3 | 2022 | 4 | 2023 |
| ***DEICE Tech Stack*** | | | | |
| Platform Compute and Store | 2 | 2023 | 4 | 2023 |
| Minimum Viable Product - Development | 2 | 2023 | 3 | 2023 |
| Increment 1 | 4 | 2023 | 4 | 2023 |
| Integration & Operations | 4 | 2023 | 4 | 2023 |
| ***Space-to-Space Communications*** | | | | |
| Development | 2 | 2023 | 2 | 2024 |
| ***CubeSat*** | | | | |
| Development | 2 | 2023 | 2 | 2024 |
| ***Solar Power*** | | | | |
| Development | 2 | 2024 | 4 | 2025 |
| ***Space-to-Space Communications Follow-on*** | | | | |
| Development | 3 | 2024 | 2 | 2027 |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | | Date: March 2023 |
|---|---|---|---|
| Appropriation/Budget Activity<br>3620F / 4 | R-1 Program Element (Number/Name)<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | Project (Number/Name)<br>645611 / *Assault Breaker II* | |

| COST ($ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 645611: *Assault Breaker II* | - | 5.000 | 5.153 | 5.000 | 0.000 | 5.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 15.153 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

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

Assault Breaker II (ABII) is an all-Service, classified, multi-year effort, led by DARPA, to analyze, research, and recommend material and non-material all domain counter-anti-access/area denial solutions to the Joint Requirements Oversight Council (JROC).

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| ***Title:*** Assault Breaker II | 5.000 | 5.153 | 5.000 |
| ***Description:*** Assault Breaker II is an all-Service, classified, multi-year effort, led by DARPA, to analyze, research, and recommend material and non-material all domain counter-anti-access/area denial solutions to the JROC.<br><br>***FY 2023 Plans:***<br>Provide warfighter analysis, experiments, and development of modelling and simulation tools to support warfighting objectives established by DARPA.<br><br>***FY 2024 Plans:***<br>DARPA MOA updated extending funding and personnel support through FY 2024.<br><br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>FY 2024 increased to 5.000M, reference updated DARPA MOA extending funding and personnel support through FY 2024. | | | |
| **Accomplishments/Planned Programs Subtotals** | 5.000 | 5.153 | 5.000 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**Remarks**

**D. Acquisition Strategy**

Funds are sent to DARPA via a Military Interdepartmental Purchase Request (MIPR).

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force | | | Date: March 2023 |
|---|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645611 / *Assault Breaker II* | |

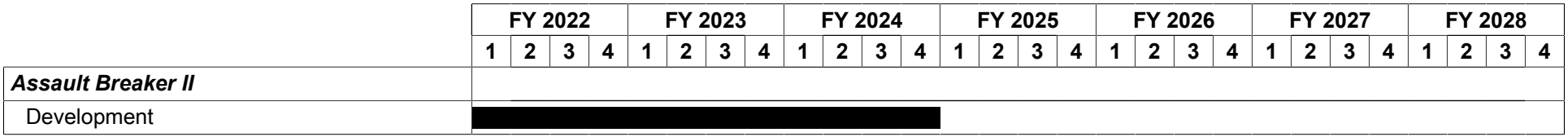
**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2022 Cost | FY 2022 Award Date | FY 2023 Cost | FY 2023 Award Date | FY 2024 Base Cost | FY 2024 Base Award Date | FY 2024 OCO Cost | FY 2024 OCO Award Date | FY 2024 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Assault Breaker II | MIPR | Radiance Technologies : Huntsville, AL | - | 5.000 | Dec 2021 | 5.153 | Dec 2022 | 5.000 | Dec 2023 | - | | 5.000 | Continuing | Continuing | - |
| | | **Subtotal** | - | 5.000 | | 5.153 | | 5.000 | | - | | 5.000 | Continuing | Continuing | N/A |

| | Prior Years | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | - | 5.000 | | 5.153 | | 5.000 | | - | | 5.000 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645611 / *Assault Breaker II* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206427SF / *Space Systems Prototype Transitions (SSPT)* | **Project (Number/Name)**<br>645611 / *Assault Breaker II* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Assault Breaker II*** | | | | |
| Development | 1 | 2022 | 4 | 2024 |