Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Defense Advanced Research Projects Agency	Date: May 2021
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603760E / *COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS*

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	225.917	221.724	251.794	-	251.794	-	-	-	-	-	-
CCC-02: *INFORMATION INTEGRATION SYSTEMS*	-	108.541	110.555	122.057	-	122.057	-	-	-	-	-	-
CCC-06: *COMMAND, CONTROL AND COMMUNICATION SYSTEMS*	-	117.376	111.169	129.737	-	129.737	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Command, Control and Communications Systems Program Element is budgeted in the Advanced Technology Development Budget Activity because its purpose is to demonstrate and evaluate advanced information systems research and development concepts.

The success of military operations depends on timely, reliable, secure, and synchronized dissemination of command and control and relevant situational awareness information to every military echelon. While wired communications and networks are fairly well developed, providing assured high-bandwidth mobile wireless capabilities that match or exceed commercial wired infrastructure is needed to meet the demands of military users. The goal of the Information Integration Systems project is to develop and demonstrate technologies that will provide effective communications to U.S. forces. Approaches to this goal include developing technologies in these areas:

- High-Capacity Links technologies - enables greater back-haul capability.
- Advanced Networking technologies - supports resilience, adaptability, scalability, and composable systems to enable adaptive effects webs.
- Low Probability of Detection and Anti-Jam (LPD/AJ) technologies - provides assured communications in very high-threat environments.
- Novel Radio Frequency and Spectral Sensing (RF/SS) - supports efficient spectrum management in congested environments and detection of electromagnetic threats.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	229.134	221.724	283.864	-	283.864
Current President's Budget	225.917	221.724	251.794	-	251.794
Total Adjustments	-3.217	0.000	-32.070	-	-32.070
• Congressional General Reductions	0.000	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	-2.217	0.000			
• SBIR/STTR Transfer	-1.000	0.000			
• TotalOtherAdjustments	-	-	-32.070	-	-32.070

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Defense Advanced Research Projects Agency	Date: May 2021
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603760E *I COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: CCC-02: *INFORMATION INTEGRATION SYSTEMS*		
Congressional Add: *Satellite Antenna Technology*	7.000	-
Congressional Add Subtotals for Project: CCC-02	7.000	-
Congressional Add Totals for all Projects	7.000	-

Change Summary Explanation

FY 2020: Decrease reflects the SBIR/STTR transfer and reprogrammings.

FY 2021: N/A

FY 2022: Decrease reflects the completion of the Secure Handhelds on Assured Resilient networks at the tactical Edge (SHARE), Dynamic Network Adaptation for Mission Optimization (DyNAMO), and Geospatial Cloud Analytics (GCA) programs.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Advanced Research Projects Agency			Date: May 2021
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603760E / *COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS*	Project (Number/Name) CCC-02 / *INFORMATION INTEGRATION SYSTEMS*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CCC-02: *INFORMATION INTEGRATION SYSTEMS*	-	108.541	110.555	122.057	-	122.057	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The success of military operations depends on timely, reliable, secure, and synchronized dissemination of command and control and relevant situational awareness information to every military echelon. While wired communications and networks are fairly well developed, providing assured high-bandwidth mobile wireless capabilities that match or exceed commercial wired infrastructure is needed to meet the demands of military users. The goal of the Information Integration Systems project is to develop and demonstrate technologies that will provide effective communications to U.S. forces. Approaches to this goal include developing technologies in these areas:

- High-Capacity Links technologies - enables greater back-haul capability.
- Advanced Networking technologies - supports resilience, adaptability, scalability, and composable systems to enable adaptive effects webs.
- Low Probability of Detection and Anti-Jam (LPD/AJ) technologies - provides assured communications in very high-threat environments.
- Novel Radio Frequency and Spectral Sensing (RF/SS) - supports efficient spectrum management in congested environments and detection of electromagnetic threats.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Network Universal Persistence (Network UP)	19.934	16.829	10.998

Description: Current radios send network control information and data using the same wireless link. This produces a common failure mode when that wireless link degrades. In many of today's military wireless networks, even brief wireless link outages create a loss of network connectivity that can take more than two minutes to recover once the wireless link is re-established. During these network outages, data transmission is not possible. The Network UP program will develop and demonstrate radio technology that maintains network reliability through periods of frequent signal degradation that routinely occur in military operational environments. Isolation of critical control channel information in a separate, robust wireless link will allow creation of a protected control channel that can maintain network reliability even when the data channel is lost. The Network UP program will develop technology and a prototype system that enables military wireless networks to send data over dynamic, unstable wireless links. The program will develop approaches to separate the control and data planes across different wireless links and design and implement mechanisms to maintain synchronization across those separate links. Technologies developed under this program will transition to the Services.

FY 2021 Plans:

- Design and build a wireless hardware and software demonstration platform.
- Complete integration of network control algorithms onto multi-band or multiple radio platforms.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Advanced Research Projects Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603760E / *COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS*	**Project (Number/Name)** CCC-02 / *INFORMATION INTEGRATION SYSTEMS*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
- Conduct critical design review of integrated hardware and software. ***FY 2022 Plans:*** - Test and verify that the operation of the integrated hardware and software meet program goals. - Demonstrate network connectivity and data throughput on wireless channels in the presence of high levels of interference. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The FY 2022 decrease reflects a shift from development and integration to demonstrations and testing.			
Title: Protected Forward Communications (PFC) ***Description:*** The collaborative application of combat power in ground tactical operations demands reliable exchange of rich information and precise coordination of actions across various echelons. These operations take place over three critical conversations: (1) to coordinate the actions of a local group, (2) to coordinate group and airborne assets, and (3) to interact with rear echelon command. The communication links over which these three conversations take place are at risk from jamming and geolocation operations conducted with increasingly sophisticated exploitation and denial technology employed by our adversaries. This problem is compounded by demands for ever-increasing capacity of these links. The Protected Forward Communications (PFC) program will build on technical advances in resilient, efficient, and aware communications technology to design a single communication architecture to protect all three conversations from jamming and geolocation. PFC is generally applicable to small unit operations and is particularly relevant to the close air support (CAS) function typically executed by the Joint Terminal Attack Controller (JTAC) or Forward Air Controller (FAC). The PFC program will transition to the Services. ***FY 2021 Plans:*** - Demonstrate bread board implementations designed to performance goals established for the program and conduct lab bench testing. - Develop brass board implementations of a subset of the communications links. - Conduct experimentation with brass board implementations in a realistic environment with real operators and assess performance against realistic threat systems. - Produce complete objective system design of PFC communication system with data artifacts. ***FY 2022 Plans:*** - Conduct engineering over the air test of system prototype to verify updates and modifications. - Conduct over the air testing of system prototype with service transition partner in an emulated anti-access, area denied environment. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	19.924	15.951	13.325

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Advanced Research Projects Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603760E / *COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS*	**Project (Number/Name)** CCC-02 / *INFORMATION INTEGRATION SYSTEMS*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
The FY 2022 decrease reflects transitioning from design and development to test and evaluation.			
Title: Composable Logistics and Information Omniscience (LogX)	18.401	27.552	24.965
Description: The Composable Logistics and Information Omniscience (LogX) program is developing and demonstrating software for real-time logistics and supply chain system situational awareness (diagnosis), future state prediction (prognosis) and resilience at unprecedented scale and speed. The software will integrate a range of technical innovations spanning human-machine interface, dynamic data visualization, and distributed/collaborative software design. Based upon technologies developed in the Prototype Resilient Operations Testbed for Expeditionary Urban Systems of Systems (PROTEUS) program (budgeted in PE 0603766E, Project NET-01), the LogX capability will allow users to achieve a more distributed and resilient logistics command and control (C2) system utilizing planned cloud-based data environments. The new capability will be tested in an experimental environment tied to current logistics datasets. Technologies from this program will be transitioned to the Services, Combatant Commands, including U.S. Transportation Command, and the Defense Logistics Agency (DLA). ***FY 2021 Plans:*** - Demonstrate capabilities to detect and mitigate supply chain fluctuations and disruptions. - Demonstrate capability to address multiple operational applications simultaneously. - Produce systems for use by actual logistics and operations planners. - Begin to prepare systems for deployment to operational settings. ***FY 2022 Plans:*** - Demonstrate an integrated system ready for deployment to operational settings. - Demonstrate ability to assess resilience within the logistics enterprise. - Characterize the effect of supply chain fluctuations or disruptions. - Demonstrate dynamic adaptation of the system to mitigate disruptions and improve outcomes. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The FY 2022 decrease reflects shift in focus from system development to testing and documentation in support of transition.			
Title: Air Space Total Awareness for Rapid Tactical Execution (ASTARTE)*	-	15.693	24.616
Description: *Formerly Dynamic Airspace Control The Air Space Total Awareness for Rapid Tactical Execution (ASTARTE) program will develop and demonstrate innovative approaches to create a joint, regional (covering the span of an Army division) airspace picture and dynamically managing local airspace operations in an Anti-Access/Area Denial (A2/AD) environment without requiring conventional high power radars or communications. This capability will support airspace dynamic planning and real-time re-planning and deconfliction of a wide array			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Advanced Research Projects Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603760E / *COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS*	**Project (Number/Name)** CCC-02 / *INFORMATION INTEGRATION SYSTEMS*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
of airborne systems and long-range fires. ASTARTE will identify and deconflict operational missions in a complicated environment filled with ground and airborne threats, friendly fires, precision guided munitions, manned and unmanned aircraft, and civilian aviation. Based on technologies developed in the Systems of Systems-Enhanced Small Units (SESU) program (budgeted in PE 0603766E/Project NET-01), ASTARTE will develop a virtual and live testbed for airspace management systems, a series of algorithms for airspace planning and operations, and a collection of sensors, leveraging existing and novel sensors for real-time spatial and temporal tracking of airborne platforms. ASTARTE will be compatible with legacy command and control (C2) airspace management tools to take advantage of prior investments in technologies, such as human-machine interfaces, and to minimize costs and the impact on training. Technologies from this program will transition to the Army and the Air Force. ***FY 2021 Plans:*** - Develop representative airspace vignettes and identify performance metrics. - Design and develop the software architecture, development environment (DEVSECOPS), and interface specifications to host program software technology and interoperate with legacy airspace management tools. - Define required algorithm training data sets. - Identify non-traditional sensor options and develop performance models. ***FY 2022 Plans:*** - Develop understanding and decision algorithms. - Conduct critical design review of algorithms and sensor systems. - Establish Army and Air Force testbeds that will interface to legacy test and training infrastructure. - Integrate understanding and decision algorithms and sensor models into testbed. - Conduct constructive and virtual integration experiments to evaluate technology performance. - Conduct virtual and live experimentation to assess operational use of ASTARTE technology in joint live exercises. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The FY 2022 increase reflects transition from modelling and software development to constructive and virtual experimentation.			
Title: Resilient Networked Distributed Mosaic Communications (RNDMC)*	-	10.965	22.153
Description: *Formerly Resilient Networked Distributed Multi Transceiver Communications (RNDMC) Resilient Networked Distributed Mosaic Communications (RNDMC) aims to provide Beyond-Line-Of-Sight (BLOS) tactical communications for an Anti-Access/Area Denial (A2/AD) environment by developing low-cost expendable transceivers that may be hosted on ground platforms, including hand-carried, autonomous air vehicles, high altitude platforms, and low-cost/low earth orbit satellites. RNDMC plans to use a combination of synchronized transceivers and tactical radios to enhance desired signals and reject intentional and unintentional interference. Based on technologies developed in the Protected Forward Communications			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Advanced Research Projects Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603760E / *COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS*	**Project (Number/Name)** CCC-02 / *INFORMATION INTEGRATION SYSTEMS*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
(PFC) program (budgeted in this PE/Project), RNDMC will design, develop, and demonstrate a distributed field of expendable transceivers, providing a robust, low-cost, BLOS tactical communications system that degrades gracefully as transceiver nodes become unavailable. The ultimate RNDMC goal is a demonstration on ground and air platforms and will not be reliant on Global Positioning System (GPS). Technologies from this program will transition to the Services. ***FY 2021 Plans:*** - Develop representative communication vignettes and identify performance metrics for ground, air, high altitude, and space RNDMC configurations. - Begin development of tactical terminals and transceiver nodes. - Verify designs using modeling and simulation in ground and air vignettes. ***FY 2022 Plans:*** - Conduct system-level design review of multiple-hop RNDMC system. - Build prototypes for low size, weight, power, and cost (SWaP-C) transceiver nodes. - Begin unit testing of transceiver nodes including tactical waveform augmentation and channel sounding. - Conduct lab testing of prototype system including gain enhancements from distributed coherent beamforming and interference suppression through distributed coherent beam-nulling. - Conduct long link air-to-ground test to validate RNDMC approach in a multipoint to point configuration. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The FY 2022 increase reflects transition from modelling and simulation to unit and system level testing.			
Title: Mobile Advanced-network Laboratory for Tactics and Applications (MALTA) ***Description:*** MALTA will develop technology that enables tactical and expeditionary operations to quickly integrate and rapidly deploy tactical, resilient networks in hostile environments. Based on technologies developed under the Secure Handhelds on Assured Resilient networks at the tactical Edge (SHARE) program, also budgeted in this PE/Project, MALTA solves long-standing problems of rapidly setting up forward-deployed expeditionary networks through the use of advanced commercial wireless networking technologies (e.g., 5G and 5G+) to replace current siloed, outdated, and hard to manage systems. Instead of recreating datalinks, waveforms, or networking technology, MALTA will bring to the tactical and operational setting fully authenticated core network capabilities that, shortly after deployment, enable operators to move and process information and interact with coalition partners without the need for weeks of planning and configuration time. Technologies from MALTA will transition to the Services. ***FY 2022 Plans:*** - Design initial tactical radio integration capabilities.	-	-	11.000

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Advanced Research Projects Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603760E / *COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS*	**Project (Number/Name)** CCC-02 / *INFORMATION INTEGRATION SYSTEMS*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
- Investigate commercial technology opportunities and complete initial network management reference design. - Establish regular user interaction to assess overall system performance and inform dynamic network reconfiguration tools. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The FY 2022 increase reflects program initiation.			
Title: Mission Integrated Network Control (MINC) ***Description:*** The goal of the Mission Integrated Network Control (MINC) program is to develop networking resource management technology to enable agile, self-healing, heterogeneous communications that adapt autonomously to battlefield situations and information needs. Technology developed by MINC will translate warfighter information needs and mission applications into requests for communication services and will autonomously discover and configure communications nodes and pathways to form and execute adaptive kill-webs and move information where it is needed the most. Building on technologies developed in the Dynamic Network Adaptation for Mission Optimization (DyNAMO) program, budgeted in this PE/Project, MINC supports applications that will provide up-to-date information to support warfighter situational awareness, a customized common operating picture, and adaptive kill chains across joint all-domain operations in a highly contested environment. Technology from this program will transition to the Services. ***FY 2022 Plans:*** - Design a secure control overlay network that provides resilient discovery and control of network resources and mission services across heterogeneous networks. - Design network orchestration approaches and interfaces that provide semi-autonomous network and information management in support of mission objectives and information needs. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The FY 2022 increase reflects program initiation.	-	-	15.000
Title: Secure Handhelds on Assured Resilient networks at the tactical Edge (SHARE) ***Description:*** The goal of the Secure Handhelds on Assured Resilient networks at the tactical Edge (SHARE) program is to develop innovative networking and information sharing approaches that enable U.S. and coalition forces to coordinate tactical operations effectively, efficiently, and securely by eliminating today's prohibitive security cost and complexity barriers. SHARE will provide the level of security provided by today's communications systems, while managing trust at the tactical edge, and provide new opportunities for U.S. and coalition forces to gain and maintain a tactical advantage on the battlefield. Coordination includes providing all the information required to enable the command and control necessary to plan and execute operations in all phases of warfare. Technology from this program will transition to the Services and DoD Agencies that work with coalition partners. ***FY 2021 Plans:***	19.963	11.687	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Advanced Research Projects Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603760E / *COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS*	**Project (Number/Name)** CCC-02 / *INFORMATION INTEGRATION SYSTEMS*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
- Complete integration of SHARE security and networking capabilities onto DoD handheld devices and conduct final prototype testing to include automated network configuration software. - Conduct testing of SHARE security and networking capabilities integrated onto operational airborne and ground networks that support larger DoD Command and Control (C2) enterprise systems. - Continue co-development of SHARE software with DoD partners for follow-on software configuration management and begin accreditation for use on approved DoD handheld systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The FY 2022 decrease reflects program completion.			
Title: Dynamic Network Adaptation for Mission Optimization (DyNAMO) ***Description:*** Wireless networks have evolved into complex systems having many configurable parameters and features, including link data rates, power settings, inter-network gateways, and security associations. The optimal settings for these features vary greatly depending on the mission for which the network is deployed and the environment in which it is operating. Currently, the majority of these features are optimized off-line for specific scenarios and assumptions and are pre-set before use in a mission. There is no capability for the settings to adapt if the actual mission or environment differs from the original assumptions used to configure the network. The problem is exacerbated in scenarios in which intelligent adversaries can affect the topology and operation of the network unpredictably and on short timescales. Furthermore, future operations will include multiple, different radios interconnected on the same platform, and those existing networks lack a common standard for interoperability. The DyNAMO program will develop software that addresses the incompatibilities preventing information sharing across independent airborne and ground networks and develop new approaches to configure and control networks and networks of networks for operation in dynamic and contested environments. The program will address optimization within legacy and future military networks, interactions between networks, and availability of necessary network services to support mission success. Technologies developed under this program will transition to the Services. ***FY 2021 Plans:*** - Integrate advanced security elements into DyNAMO in order to operate over multiple security enclaves. - Demonstrate the integrated DyNAMO system to military Service partners to support transition. - Provide DyNAMO software in government controlled repository for use by the Services. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The FY 2022 decrease reflects program completion.	11.331	5.989	-
Title: Geospatial Cloud Analytics (GCA)	11.988	5.889	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Advanced Research Projects Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603760E / *COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS*	**Project (Number/Name)** CCC-02 / *INFORMATION INTEGRATION SYSTEMS*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: The Geospatial Cloud Analytics (GCA) program is developing technology to access and analyze global-scale, multimodal geospatial data and pilot an analytics-as-a-service business model. Exploiting multiple sources and modalities at a global scale requires the development of technologies and systems that provide common access points to commercial data, computational power to preprocess data and make it exploitable by analytical tools, and new models supporting sensing and analytics as services, including sharing of tools and results between individuals and consortiums. GCA creates a capability for near real time monitoring of global events and change detection across various environments and warfighting domains. By exploiting the vast amounts of geospatial information from new commercial satellite constellations and other sources, GCA will create the technology foundations needed to provide global awareness of gray zone activities for DoD military mission planning and execution. It will do so by augmenting commercial capabilities with defense assets, not vice versa, and thereby will improve speed, agility, and scalability. Technology from this program will transition to the National Geospatial-Intelligence Agency (NGA). ***FY 2021 Plans:*** - Transition analytics services to National Geospatial-Intelligence Agency. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The FY 2022 decrease reflects program completion.			
Accomplishments/Planned Programs Subtotals	101.541	110.555	122.057

	FY 2020	FY 2021
Congressional Add: Satellite Antenna Technology	7.000	-
FY 2020 Accomplishments: - Evaluated the current SoA in Free Space Optical Communications (FSOC). - Identified cost-effective technical approach leveraging existing system. - Initiated preliminary design for 2-D chip. - Converted existing automotive Light Detection and Ranging (LIDAR) chip to operation in conventional FSOC bands. - Demonstrated 2-D beam steering. - Increased range to meet requirements for satellite-to-satellite FSOC.		
Congressional Adds Subtotals	7.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Advanced Research Projects Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603760E / *COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS*	**Project (Number/Name)** CCC-02 / *INFORMATION INTEGRATION SYSTEMS*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Advanced Research Projects Agency											Date: May 2021	
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603760E / *COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS*				Project (Number/Name) CCC-06 / *COMMAND, CONTROL AND COMMUNICATION SYSTEMS*			
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
CCC-06: *COMMAND, CONTROL AND COMMUNICATION SYSTEMS*	-	117.376	111.169	129.737	-	129.737	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds classified DARPA programs that are reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Classified DARPA Program	117.376	111.169	129.737
Description: This project funds Classified DARPA Programs. Details of this submission are classified. ***FY 2021 Plans:*** Details will be provided under separate cover. ***FY 2022 Plans:*** Details will be provided under separate cover. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Details will be provided under separate cover.			
Accomplishments/Planned Programs Subtotals	117.376	111.169	129.737

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A