Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force											Date: April 2022	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603790F / *NATO Research and Development*							
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	-	3.506	4.114	4.295	0.000	4.295	4.383	4.464	4.558	4.660	0.000	29.980
64NATO: *Nato Coop R&D*	-	3.506	4.114	4.295	0.000	4.295	4.383	4.464	4.558	4.660	0.000	29.980
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, PE 0603791F, International Space Cooperative Research & Development, Project 645035, International Space Coop R&D, efforts were transferred to PE 0603790F, NATO Research and Development, Project 64NATO, NATO Coop R&D, in order to consolidate international cooperative research and development activities. FY 2024-2027 FYDP budget dollars have not been loaded into IDECS.

A. Mission Description and Budget Item Justification

These funds will be used to initiate air, space, and cyber international cooperative research, and development (ICR&D) agreements with North Atlantic Treaty Organization (NATO) member states, major non-NATO allies and friendly foreign countries. Each of the selected activities and projects are required to have a concluded international agreement (IA), prior to funds being released, that implements the provisions of Title 10 U.S. Code, Section 2350a. This legislation (Title 10 U.S. Code, Section 2350) authorizes funds to significantly improve U.S. and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. These funds will not be used for government civilian salaries, permanent construction, or spent overseas. This program element funds the implementation of Air Force ICR&D agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support.

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.

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B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	3.640	4.114	0.000	0.000	0.000
Current President's Budget	3.506	4.114	4.295	0.000	4.295
Total Adjustments	-0.134	0.000	4.295	0.000	4.295
• 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	0.000	0.000			
• SBIR/STTR Transfer	-0.134	0.000			
• Other Adjustments	0.000	0.000	4.295	0.000	4.295

Change Summary Explanation

FY22 funds decreased by .027M to support other Air Force Requirments.

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.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: International Cooperative Research and Development	3.506	4.114	4.295
Description: Supports bi- and multi-lateral international agreements that meet USAF RDT&E objectives and goals. Each of the cooperative projects that receive funding must meet one or more of the following requirements: enhance warfighter capabilities and coalition interoperability; accelerate the availability of defense systems; strengthen and reinforce strategic partnerships; gain access to the best defense technologies, capabilities and techniques; build relationships and influence with allies; and/or eliminate duplication of R&D efforts. ***FY 2022 Plans:*** FY22 cooperative projects involve RDT&E efforts in Artificial Intelligence, directed energy, hypersonics, Autonomy, human performance, information systems, aerospace systems, munitions, materials and manufacturing, sensors, local area airbase / airfield defense, machine learning, space situational awareness, missile warning, military satellite communications, global positioning systems, responsive space capabilities, cyber network defense, sensors,information assurance, and space vehicles. These projects include but are not limited to: Joint Advanced Laser Integration (JAVALIN), Confined Quantum Sensors, Military Applications of Laser Produced Particle Beams, Solid State High Power Microwave "Cannon", DEAD AIM, Advanced Electro-Optic Modulators for Enhancing RF Photonic Systems, Intelligent Adaptive Collaborative Teaming Technologies (iACTT),			

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force	Date: April 2022
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C. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Hyperspectral Detection / ID with EO / IR Fusion (HyDEF), Quick Reaction Laser Assessment Sensor, Advanced Data Analytics for C4ISR, MADCAP, Ranging of GEO Uncooperative Entities (RoGUE), Improved HPEM Elements for Next Generation, RF-Directed Energy Weapons, AI Based ISR for Contested and Diverse Environments, Autonomous Drone Swarm for Airfield and Runway Inspection, Operational Research Collaboration for Human Improvement in Defense (ORCHID), Multimodal Open Source Analytic Insights for C4ISR (MOSAIC), Dynamic Material Analysis Fatigue Life, Sustainment and Augmentation of the Military Enterprise through Synthetic Biology Engineering, Corrosion: Modeling and Accelerated Testing, and Damaged Composite Airframe Management Tools. International Cooperation are with but not limited to the following partners: Australia, Canada, Estonia, France, Germany, India, Italy, Israel, Japan, Netherlands, Norway, Republic of Korea, Singapore, Sweden, Switzerland, and United Kingdom. None / N/A ***FY 2023 Plans:*** FY23 cooperative projects involve RDT&E efforts in Artificial Intelligence, directed energy, hypersonics, Autonomy, human performance, information systems, aerospace systems, munitions, materials and manufacturing, sensors, local area airbase / airfield defense, machine learning, space situational awareness, missile warning, military satellite communications, global positioning systems, responsive space capabilities, cyber network defense, sensors ,information assurance, and space vehicles. These projects include but are not limited to: High Power Electromagnetics Advanced Weapon non-Kinetic Initiative, Gyromagnetic NLTL Arctic Systems (GNATS); Disturbed Ionospheres; High Atmospheric Eye Safe Laser (HAESL); Critical Infrastructure Resiliency and Prediction (CIRCAT); Dynamic Material Analysis Fatigue Life; Quantum, Photonic, & Electromagnetic Enabling Technology (QPEET), "Near-Ground-Turbulence Impact Study", Corrosion Modelling and Accelerated Testing, Phased-Array HPM System, Functional Probiotic to Improve Warfighter Performance During, Deployment Stress, Material Advances in Human wearables for physiological Sensing and Augmentation Military applications of laser produced particle beams, Risk Reduction for Flown Full Scale Composite Component Testing, Pilot Performance and Exposure Tracking, Nanomaterial Sensors, Protected Tactical Services (PTS), Wideband Global SATCOM, Low Earth Orbit Space Domain Awareness, and Deep Space Radar. Bilateral and Multilateral cooperative efforts are with the following countries: Australia, Austria, Estonia, Latvia, Lithuania, Belgium, Netherlands, Italy, Israel, India, France, Germany, Sweden, Finland, Norway, Luxembourg, Switzerland, Japan, Republic of Korea, Singapore, New Zealand, Canada, and Chile. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** The FY23 NATO Coop R&D Program continues to experience 30% customer demand increase from FY22, but only a depicts a tepid inflationary elevation. Program viability and strategic importance requests future budgets reflect the customer demand.			
Accomplishments/Planned Programs Subtotals	3.506	4.114	4.295

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D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

A principal goal of the NATO Cooperative R&D program is to effectively utilize the aggregate resources invested by the US and our allies in air, space, and cyber R&D. This program element provides the critical funding incentive needed to pursue air, space and cyber related International Cooperative Research Development and Acquisition (ICRD&A) agreements and helps to (a) leverage USAF and allied resources through cost sharing and economies of scale; (b) exploit the best US and allied technologies for equipping coalition forces; (c) demonstrate areas of commonality or interoperability with our allies; and (d) accelerate the availability of defense technology and systems. Candidate projects are reviewed against USAF goals, DoD objectives, and warfighter needs prior to being approved. An international agreement defining project objectives, responsibilities and costs is required prior to release of funds. To obtain these funds and ensure service commitment, projects are selected from existing or new RDT&E programs funded in the Future Years Defense Plan (FYDP). Project offices must show matching funds and contributions from associated program elements and equitable allied funding. As appropriate, funding responsibility for out-year requirements and follow-on efforts are transferred to the project office and associated program elements. Any new contracts are awarded after full and open competition.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0603790F / *NATO Research and Development*	**Project (Number/Name)** 64NATO / *Nato Coop R&D*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NATO Coop R&D (International Research Projects)	Various	Various : NV	-	2.048	Feb 2021	2.873	Feb 2022	2.905	Feb 2023	-		2.905	Continuing	Continuing	-
		Subtotal	-	2.048		2.873		2.905		-		2.905	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NATO Coop R&D (International Research Projects)	Various	Various : NV	-	1.458	Feb 2021	1.241	Feb 2022	1.390	Feb 2023	-		1.390	Continuing	Continuing	-
		Subtotal	-	1.458		1.241		1.390		-		1.390	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	3.506		4.114		4.295		-		4.295	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0603790F / *NATO Research and Development*	**Project (Number/Name)** 64NATO / *Nato Coop R&D*

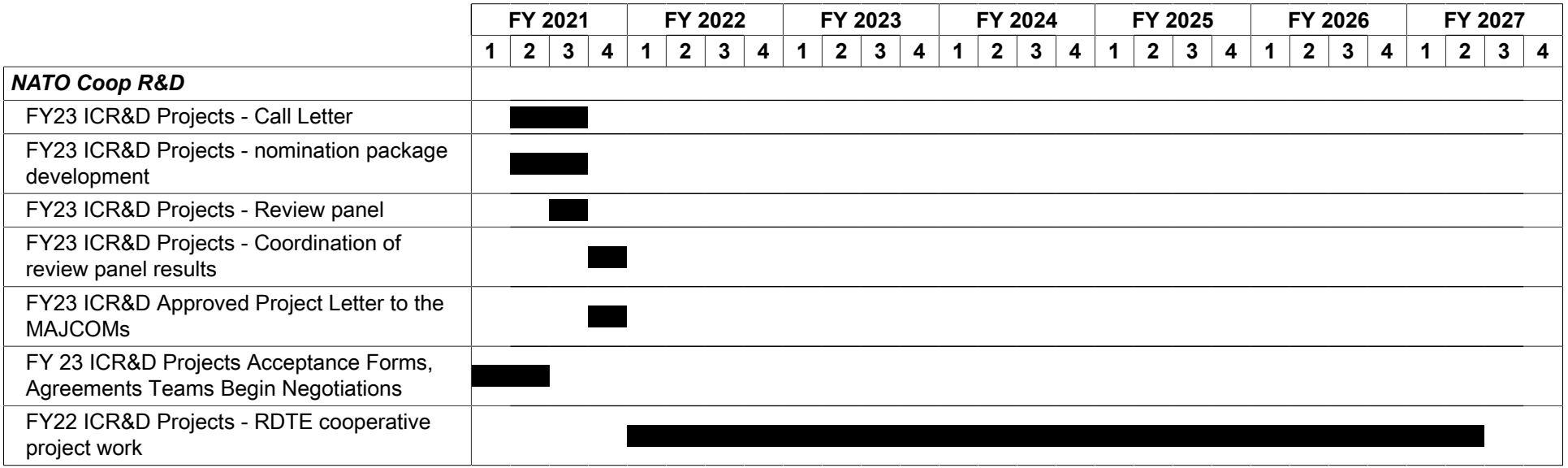

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0603790F / *NATO Research and Development*	**Project (Number/Name)** 64NATO / *Nato Coop R&D*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
NATO Coop R&D				
FY23 ICR&D Projects - Call Letter	2	2021	3	2021
FY23 ICR&D Projects - nomination package development	2	2021	3	2021
FY23 ICR&D Projects - Review panel	3	2021	3	2021
FY23 ICR&D Projects - Coordination of review panel results	4	2021	4	2021
FY23 ICR&D Approved Project Letter to the MAJCOMs	4	2021	4	2021
FY 23 ICR&D Projects Acceptance Forms, Agreements Teams Begin Negotiations	1	2021	2	2021
FY22 ICR&D Projects - RDTE cooperative project work	1	2022	2	2027