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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207590F / <i>Seek Eagle</i>
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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	-	28.175	29.626	30.539	0.000	30.539	-	-	-	-	-	-
674037: <i>SEEK EAGLE Certifications</i>	-	28.175	29.626	30.539	0.000	30.539	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Air Force operates a variety of combat aircraft that carry numerous and varied stores (munitions, missiles, fuel tanks, targeting pods, range pods, electronic countermeasures pods, etc.). Stores are carried in many different loading combinations determined by operational and training scenarios, missions, tactics, and weapon development programs. Aircraft-store configurations/carriage and employment requirements change as operational plans and tactics change and as new stores are developed and fielded. Before operational, training, or test use, the Air Force must certify these configurations for safe loading, carriage, and separation (jettison and normal release), as well as verify ballistics accuracy under the user-certified carriage and employment parameters. The Air Force SEEK EAGLE program completes certification recommendations and recommended flight clearances through any combination of engineering analysis, wind tunnel testing, modeling and simulation, and ground/flight test and evaluation. The SEEK EAGLE effort encompasses eight disciplines: Fit and Function, Flutter, Structural Integrity, Stability and Control, Electromagnetic Compatibility/Interference (EMC/EMI), Separations, Ballistics, and Safe Escape.

In support of certification, the program recommends approximately 1000 aircraft/store combinations for flight each year with analysis and testing, requiring from weeks to years depending on the complexity. Integrated solutions for combat aircrew weapon delivery planning problems are developed and provided to combat forces via Combat Weapons Delivery Software (CWDS) and Joint Safe Escape Analysis Solution (JSEAS). SEEK EAGLE works in coordination with the Air Force Safety Center to provide Hazards of Electromagnetic Radiation to Ordnance (HERO) analysis and certification recommendations of ordnance systems containing electro-explosive devices. The program is also responsible for inserting new and emerging technologies into the SEEK EAGLE process as well as providing resources for the sustainment of a viable Air Force aircraft/store certification capability.

SEEK EAGLE funds are currently budgeted to support certification testing and analysis for new and inventory stores including, but not limited to: Small Diameter Bomb I and II (SDB), Laser Joint Direct Attack Munitions (LJDAM), Joint Air-to-Surface Standoff Missile (JASSM), Long-Range Anti-Ship Missile (LRASM), Air Intercept Missile (AIM-9X), Advanced Medium Range Air-to-Air Missile (AIM-120D), Miniature Air-Launched Decoy (MALD), BRU-57 (Smart Bomb Rack), BRU-61 (SDB Bomb Rack), Advanced Precision Kill Weapon System (APKWS), Sniper Targeting Pod with video data link, LITENING Targeting Pod with video data link, laser guided bombs, B61 (Mod 12), penetrator warhead upgrades, practice bombs, and aircraft instrumentation pod modifications. SEEK EAGLE funds are also used to support certification of other inventory stores on Combat Air Forces (CAF) and Special Operations Command (SOCOM) aircraft. In addition, these funds further support capability development and weapons certification efforts required by Air Combat Command to achieve Full Operational Capability (FOC) for the F-35A. Likewise, these funds also support F-22A weapons certification efforts for emerging weapons and B-21 development for critical Engineering and Manufacturing Development (EMD) milestones.

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This program element may include necessary civilian pay expenses required to manage, execute, and deliver SEEK EAGLE capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in Program Element 0605831F.

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

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	28.237	29.680	30.998	0.000	30.998
Current President's Budget	28.175	29.626	30.539	0.000	30.539
Total Adjustments	-0.062	-0.054	-0.459	0.000	-0.459
• Congressional General Reductions	-0.062	-0.054			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.459	0.000	-0.459

Change Summary Explanation

N/A

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Title: AFSEO Warfighter Mission	18.349	20.442	21.873
Description: Supports the ability to rapidly meet emerging warfighter needs for global operations such as Operation INHERENT RESOLVE, Operation FREEDOM'S SENTINEL, and other ongoing world-wide operations.			
FY 2021 Plans: Support growing warfighter demands by expanding aircraft-store carriage envelopes and aircraft load outs. Supports F-15, F-16, A-10, B-52, B-2, B-1, MQ-9, and F-35 CAF ensuring warfighter aircraft-store requirements are met.			
FY 2022 Plans: Continue to support growing warfighter demands by expanding aircraft-store carriage envelopes and aircraft load outs. Supports F-15, F-16, A-10, B-52, B-2, B-1, MQ-9, and F-35 CAF ensuring warfighter aircraft-store requirements are met.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
Funding increased due to fielding of 5th generation aircraft while continuing to support the expanding capabilities of legacy aircraft.				
<p>Title: 5th Generation Capability Development and Support</p> <p>Description: Supports capability development and weapons certification efforts required by Air Combat Command to achieve Full Operational Capability (FOC) for the F-35A. Funds F-22A capability development and support for emerging weapons certification efforts in addition to B-21 capability development and EMD support.</p> <p>FY 2021 Plans: Maintain F-22A, F-35A, and B-21 capability development and certification efforts. Begin initial F-35 wind tunnel setup and supersonic internal guided bomb unit (GBU) variant carriage/release.</p> <p>FY 2022 Plans: Continue to maintain F-22A, F-35A, and B-21 capability development and certification efforts. Continue F-35 wind tunnel setup and supersonic internal GBU variant carriage/release.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding increased due to construction task flow for F-35A wind tunnel model design and construction at Arnold Engineering Development Complex (AEDC).</p>		2.587	1.734	1.923
<p>Title: Advanced Next Generation Weapon Capability Development and Support</p> <p>Description: Development and certification support for advanced systems such as hypersonic weapons and other classified weapons programs; increased B-1, B-2, B-52, and potentially F-15E certification support for advanced weapons such as Joint-Air-to-Surface Standoff Missile (JASSM), Long Range Anti-Ship Missile (LRASM), and GOLDEN HORDE.</p> <p>FY 2021 Plans: Maintain and enhance security infrastructure and tool development for next-generation weapons certification. Begin stand-up of Operating Location (OL) at Edwards AFB in support of next-generation test activities there, including bomber advanced capabilities, hypersonic weapons, and other classified programs.</p> <p>FY 2022 Plans: Continue building upon AFSEO's Advance Analytics Artificial Intelligence (AAAI) digital transformation effort that provides predictive outcomes to rapidly determine analogy based certification recommendations. Continue to maintain and enhance security infrastructure and tool development for next-generation weapons certification. Finalize stand-up of Edwards OL in support of next-generation test activities.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p>		4.738	4.152	2.443

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
Funding decreased as the Edwards OL stand-up effort draws down.				
<p>Title: Modeling and Simulation Capability</p> <p>Description: Ensures Modeling and Simulation (M&S) capability development in support of store certification. Supports cutting-edge innovation that leverages artificial intelligence to enable rapid weapons certification. In support of enhanced aircraft store 3D scanning and modeling, 6-DoF (Degrees of Freedom) store trajectory simulations, and computational fluid dynamics (CFD).</p> <p>FY 2021 Plans: Support development and sustainment of state-of-the-art engineering & business tools to support SEEK EAGLE enterprise.</p> <p>FY 2022 Plans: Continue to support development and sustainment of state-of-the-art engineering & business tools to support SEEK EAGLE enterprise.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding increased due to projected increases in modeling and simulation workload.</p>		1.933	1.491	2.258
<p>Title: Aircraft-Store Compatibility Analysis</p> <p>Description: Evaluates aircraft/store compatibility through analysis, M&S, and flight and ground test. Provides flight recommendations to airworthiness authorities.</p> <p>FY 2021 Plans: Provide for USAF Air-to-Air and Air-to-Ground Munitions certification efforts such as towed decoys, electronic countermeasure (ECM) pods, and chaff/flare countermeasures certification efforts, and Airborne Instrumentation Systems pods, fuel tanks, and travel pod certification efforts.</p> <p>FY 2022 Plans: Continue to provide for USAF Air-to-Air and Air-to-Ground Munitions certification efforts such as towed decoys, ECM pods, and chaff/flare countermeasures certification efforts, and Airborne Instrumentation Systems pods, fuel tanks, and travel pod certification efforts.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding increased due to inflation.</p>		0.568	1.807	2.042
Accomplishments/Planned Programs Subtotals		28.175	29.626	30.539
D. Other Program Funding Summary (\$ in Millions)				
N/A				

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

Remarks

E. Acquisition Strategy

The SEEK EAGLE program is not an acquisition program in itself; instead it supports other acquisition programs. For initial aircraft-weapons integration, the aircraft or weapon program office is responsible for budgeting and providing the test assets to the Air Force SEEK EAGLE Office (AFSEO) for the store certification requirements. For post-integration certification requirements, AFSEO funds are used to obtain the non-inventory test assets. In addition to the above highlights, budgeting responsibilities for AFSEO are delineated in Air Force Instruction 63-101/20-101, paragraph 5.4.22.1.3, dated 30 JUNE 2020.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207590F / <i>Seek Eagle</i>	Project (Number/Name) 674037 / <i>SEEK EAGLE Certifications</i>
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Advanced Data Analytics - Artificial Intelligence (AI)	SS/FP	TAMR : Cambridge, MA	-	2.810	Mar 2020	1.925	Mar 2021	0.600	Mar 2022	-		0.600	-	-	-
F-22 Capabilities	C/CPFF	Raytheon : Waltham, MA	-	0.000		-		-		-		-	-	-	-
AFSEO Mission and Planning Support (SEMATS)	C/CPFF	ERC : Ft. Walton Beach, FL	-	11.427	Mar 2020	11.222	Mar 2021	13.901	Mar 2022	-		13.901	-	-	-
F-35 Capabilities	C/CPFF	Lockheed Martin : Marietta, GA	-	2.587	Nov 2019	0.215	Nov 2020	0.100	Nov 2021	-		0.100	-	-	-
Multiple Fighter and Weapon Capability Support	C/CPFF	Multiple : Multiple	-	0.088	Mar 2020	0.159	Mar 2021	0.125	Mar 2022	-		0.125	-	-	-
F-16 Aero Sustainment	C/CPFF	Lockheed Martin : Fort Worth, TX	-	0.170	Feb 2020	0.160	Feb 2021	0.120	Feb 2022	-		0.120	-	-	-
Subtotal			-	17.082		13.681		14.846		-		14.846	-	-	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight tests and Aircraft/Store compatibility analysis	PO	96th Test Wing : Eglin AFB, FL	-	10.110	Oct 2019	12.259	Oct 2020	13.306	Oct 2021	-		13.306	-	-	-
Wind tunnel model/design and testing	PO	Arnold Engineering Dev Complex : Arnold AFB, TN	-	0.177	Jan 2020	1.382	Jan 2021	1.623	Jan 2022	-		1.623	-	-	-
Subtotal			-	10.287		13.641		14.929		-		14.929	-	-	N/A

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A&AS Support (TMAS)	C/CPFF	AFTC : Eglin AFB, FL	-	0.140	Oct 2019	0.115	Oct 2020	0.155	Oct 2021	-		0.155	-	-	-

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Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Management Support	Various	Various : Various, FL	-	0.666	Oct 2019	2.189	Oct 2020	0.609	Oct 2021	-		0.609	-	-	-
Subtotal			-	0.806		2.304		0.764		-		0.764	-	-	N/A
Project Cost Totals			-	28.175		29.626		30.539		-		30.539	-	-	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force **Date:** May 2021

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FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

SEEK EAGLE	
AFSEO Warfighter Mission	
5th Generation Capability Development and Support	
Advanced Next Generation Weapon Capability Development and Support	
Modeling and Simulation Capability	
Aircraft Store Capability Analysis	

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SEEK EAGLE				
AFSEO Warfighter Mission	1	2020	4	2026
5th Generation Capability Development and Support	1	2020	4	2026
Advanced Next Generation Weapon Capability Development and Support	1	2020	4	2026
Modeling and Simulation Capability	1	2020	4	2026
Aircraft Store Capability Analysis	1	2020	4	2026

Note

Note: The SEEK EAGLE program supports both production stores on production aircraft and the planning for future acquisition program milestones without an anticipated end date. Current warfighter requirements trigger the SEEK EAGLE process for requested aircraft-store configurations, as work is completed in accordance with designated user priorities established through the SEEK EAGLE Prioritization List process.