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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2021 Air Force										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0207590F / <i>Seek Eagle</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	24.618	28.237	29.680	0.000	29.680	30.998	32.241	33.362	33.977	Continuing	Continuing
674037: <i>SEEK EAGLE Certifications</i>	-	24.618	28.237	29.680	0.000	29.680	30.998	32.241	33.362	33.977	Continuing	Continuing
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), 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	24.699	28.237	29.734	0.000	29.734
Current President's Budget	24.618	28.237	29.680	0.000	29.680
Total Adjustments	-0.081	0.000	-0.054	0.000	-0.054
• 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	-0.081	0.000			
• Other Adjustments	0.000	0.000	-0.054	0.000	-0.054

**Change Summary Explanation**

N/A

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p><b>Title:</b> AFSEO Warfighter Mission</p> <p><b>Description:</b> 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.</p> <p><b>FY 2020 Plans:</b> Support urgent warfighter requirements such as JUONs and QRCs through engineering disciplines, to include mission planning, structural integrity, flutter, separations, safe escape, engineering analysis, information assurance, CWDS, and weapon program support.</p> <p><b>FY 2021 Plans:</b> 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.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b></p>	18.170	16.639	21.811

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
Funding increased due to fielding of 5th generation aircraft while continuing to support the expanding capabilities of legacy aircraft.				
<p><b>Title:</b> 5th Generation Capability Development and Support</p> <p><b>Description:</b> 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><b>FY 2020 Plans:</b> Maintain F-35A and B-21 capability development and certification efforts. Support critical F-35 wind tunnel model design and build and F-35 engineering tool modernization.</p> <p><b>FY 2021 Plans:</b> Continue to maintain F-35A and B-21 capability development and certification efforts. Begin initial F-35 wind tunnel setup and supersonic internal GBU variant carriage/release.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding decreased due to F-35 toolset delivery completion and completion of F-35 wind tunnel model design and build.</p>		3.057	4.438	1.406
<p><b>Title:</b> Advanced Next Generation Weapon Capability Development and Support</p> <p><b>Description:</b> Development and certification support for advanced systems such as hypersonic weapons and other classified weapons programs; increased B-1, B-2, and B-52 certification support for advanced weapons such as Joint Air-to-Surface Standoff Missile-Extended Range (JASSM-ER) and Long Range Anti-Ship Missile (LRASM) for PACOM area of responsibility (AOR).</p> <p><b>FY 2020 Plans:</b> Maintain and improve security infrastructure and tool development for next-generation weapons certification.</p> <p><b>FY 2021 Plans:</b> Continue to maintain and enhance security infrastructure and tool development for next-generation weapons certification.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding decreased due to completion of hardware/software tech refresh.</p>		2.662	4.464	2.669
<p><b>Title:</b> Modeling and Simulation Capability</p>		0.709	2.648	1.886

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p><b>Description:</b> Ensures Modeling and Simulation (M&amp;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><b>FY 2020 Plans:</b> Support development and sustainment of state-of-the-art engineering &amp; business tools to support SEEK EAGLE enterprise.</p> <p><b>FY 2021 Plans:</b> Continue to support development and sustainment of state-of-the-art engineering &amp; business tools to support SEEK EAGLE enterprise.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding decreased due to higher priorities within the Warfighter Mission thrust area.</p>				
<p><b>Title:</b> Aircraft-Store Compatibility Analysis</p> <p><b>Description:</b> Evaluates aircraft/store compatibility through analysis, M&amp;S, and flight and ground test. Provides flight recommendations to airworthiness authorities.</p> <p><b>FY 2020 Plans:</b> 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><b>FY 2021 Plans:</b> 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><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding increased due to increased B-52 aircraft/store compatibility efforts.</p>		0.020	0.048	1.908
<b>Accomplishments/Planned Programs Subtotals</b>		24.618	28.237	29.680
<b>D. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				

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**E. Acquisition Strategy**

The SEEK EAGLE program does not execute in accordance with established acquisition program milestones. 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.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207590F / <i>Seek Eagle</i>	<b>Project (Number/Name)</b> 674037 / <i>SEEK EAGLE Certifications</i>
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<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
F-22 Capabilities	C/CPFF	Raytheon : Waltham, MA	-	0.210	Jul 2019	0.000		0.000		-		0.000	Continuing	Continuing	-
AFSEO Mission and Planning Support (SEMATS)	C/CPFF	ERC : Ft. Walton Beach, FL	-	11.980	Mar 2019	11.127	Mar 2020	11.783	Mar 2021	-		11.783	Continuing	Continuing	-
F-35 Capabilities	C/CPFF	Lockheed Martin : Marietta, GA	-	1.172	Nov 2018	2.450	Nov 2019	1.214	Nov 2020	-		1.214	Continuing	Continuing	-
Multiple Fighter and Weapon Capability Support	C/CPFF	Multiple : Multiple	-	0.538	Mar 2019	2.490	Mar 2020	1.740	Mar 2021	-		1.740	Continuing	Continuing	-
F-16 Aero Sustainment	C/CPFF	Lockheed Martin : Fort Worth, TX	-	0.120	Feb 2019	0.170	Feb 2020	0.120	Feb 2021	-		0.120	Continuing	Continuing	-
<b>Subtotal</b>			-	14.020		16.237		14.857		-		14.857	Continuing	Continuing	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	-	7.952	Oct 2018	8.954	Oct 2019	11.317	Oct 2020	-		11.317	Continuing	Continuing	-
Wind tunnel model/design and testing	PO	Arnold Engineering Dev Complex : Arnold AFB, TN	-	1.636	Jan 2019	1.607	Jan 2020	0.908	Jan 2021	-		0.908	Continuing	Continuing	-
<b>Subtotal</b>			-	9.588		10.561		12.225		-		12.225	Continuing	Continuing	N/A

<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	96 : Eglin AFB, FL	-	0.356	Oct 2018	0.140	Oct 2019	0.485	Oct 2020	-		0.485	Continuing	Continuing	-
Management Support	Various	Various : Various, FL	-	0.654	Oct 2018	1.299	Oct 2019	2.113	Oct 2020	-		2.113	Continuing	Continuing	-
<b>Subtotal</b>			-	1.010		1.439		2.598		-		2.598	Continuing	Continuing	N/A

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	<b>Prior Years</b>	<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	-	24.618		28.237		29.680		-		29.680	Continuing	Continuing	N/A

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207590F / <i>Seek Eagle</i>	<b>Project (Number/Name)</b> 674037 / <i>SEEK EAGLE Certifications</i>
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FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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

<b>SEEK EAGLE</b>	
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 2021 Air Force **Date:** February 2020

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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>SEEK EAGLE</b>				
AFSEO Warfighter Mission	1	2019	4	2025
5th Generation Capability Development and Support	1	2019	4	2025
Advanced Next Generation Weapon Capability Development and Support	1	2019	4	2025
Modeling and Simulation Capability	1	2019	4	2025
Aircraft Store Capability Analysis	1	2019	4	2025

**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.