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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force										Date: February 2018		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207277F I ISR Innovations							
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	0.000	5.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
675373: ISR Innovations Program	-	0.000	5.750	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**

A family of systems providing high-impact, quick-reaction capabilities to Warfighters for mission planning, rehearsal, visualization, and intelligence gathering purposes. Program components include: Eagle Vision, DoD's only world-wide deployable commercial imagery ground station capability, and ISR Innovations, rapid prototyping, operational evaluation and fielding of short-notice, high-payoff capabilities addressing immediate gaps and/or shortfalls identified by Warfighting activities.

FY18 funds support NOWcasting, Atmospheric Sensing and Prediction System (ASAPS), and Caldera Event.

1. NOWcasting: NOWcasting is an automated system that provides intuitive, animated, machine-to-machine weather forecasts directly to warfighter computer applications every 15 minutes. NOWcasting expands on current weather models by incorporating non-traditional sources of weather information (the most significant being Space Based Infrared System [SBIRS] data) that significantly increases forecast resolution and accuracy. Its exploitation of SBIRS PoR data sources helps maximize the effectiveness of existing OPIR architecture and data sources.

2. ASAPS: Atmospheric Sensing and Prediction System (ASAPS) is a platform-integrated sensor for detecting adverse weather conditions such as clouds and icing. Sensing of other adverse weather phenomena, specifically lightning, would further protect valuable airborne assets and support mission success. While initially envisioned to improve environmental awareness for Remotely Piloted Aircraft--which are particularly susceptible to lightning damage due to their composite structure--the technology could expand to contribute to the distributed, collaborative, and self-organizing sensor systems providing environmental threat detection for autonomous swarming aircraft.

3. Caldera Event: Caldera Event is a non-GPS system that provides Position, Navigation, Timing (PNT), and Geolocation Capabilities in an fully GPS-denied or jammed environment. The prototype system provides insight and experimentation for the future of combined PNT, Electronic Warfare, and communications systems.

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.

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B. Program Change Summary (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	
Previous President's Budget		0.000	5.750	0.000	0.000	0.000	
Current President's Budget		0.000	5.750	0.000	0.000	0.000	
Total Adjustments		0.000	0.000	0.000	0.000	0.000	
• 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		0.000	0.000				
• Other Adjustments		0.000	0.000	0.000	0.000	0.000	
C. Accomplishments/Planned Programs (\$ in Millions)					FY 2017	FY 2018	FY 2019
Title: ISR Innovations					0.000	5.750	-
Description: NOWcasting, ASAPS, and Caldera.							
FY 2018 Plans: N/A							
NOWcasting: Improve the transfer and use of non-traditional weather data to optimize NOWcasting. Conduct an Operational Utility Evaluation to verify NOWcasting's accuracy. Develop new windows for the Afghanistan and Africa.							
ASAPS: Develop ASAPS lightning sensing ability.							
Caldera Event: Expand Advantaged Reference Node Test Network OCONUS with partners. Iterate build to print designs. Integrate with Open Systems Architecture. Define performance parameters for Military Grade Equipment.							
FY 2018 to FY 2019 Increase/Decrease Statement: N/A							
Accomplishments/Planned Programs Subtotals					0.000	5.750	-
D. Other Program Funding Summary (\$ in Millions)							
N/A							

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2019 Air Force		<b>Date:</b> February 2018
<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 0207277F / <i>ISR Innovations</i>	
<b>D. Other Program Funding Summary (\$ in Millions)</b>		
<b>Remarks</b>		
<b>E. Acquisition Strategy</b>		
<p>NOWcasting: Developmental partnership with Air Force Space Command's Space and Missile Systems Center in pursuit of their Space Modernization Initiative (Project 657009) within the Space Based Infrared System (SBIRS) High EMD program (Program Element 0604441F). Specific contract TBD.</p> <p>ASAPS: Developmental partnership with Air Force Research Laboratory's Sensor's Directorate in pursuit of their Sensor Fusion Technology Project (Project 626095) within the Aerospace Sensors Program (Program Element 0602204F). Specific contract TBD.</p> <p>Caldera Event: Developmental partnership with Air Force Research Lab and Air Force Tactical Exploitation of National Capabilities through AFLCMC C3I and Networks Directorate, Special Programs Division.</p>		
<b>F. Performance Metrics</b>		
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.		

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2019 Air Force</b>												<b>Date: February 2018</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0207277F / <i>ISR Innovations</i>						<b>Project (Number/Name)</b> 675373 / <i>ISR Innovations Program</i>			
<b>Product Development (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
NOWcasting: Optimize SBIRS ingestion	TBD	PEMDAS Technologies and Innovations : Alexandria, VA	-	-		0.100		-		-		-	Continuing	Continuing	0.100
NOWcasting: Window development	TBD	PEMDAS Technologies and Innovations : Alexandria, VA	-	-		0.900		-		-		-	Continuing	Continuing	0.900
ASAPS: Develop lightning sensing technology	TBD	PEMDAS Technologies and Innovations : Alexandria, VA	-	-		2.300		-		-		-	Continuing	Continuing	2.300
Caldera Event: Advantaged Reference Node and Precision Navigation Development	TBD	SPGlobal : Chantilly, VA	-	-		0.800		-		-		-	Continuing	Continuing	0.800
Caldera Event: System Analysis and Improvement	TBD	SPGlobal : Chantilly, VA	-	-		0.200		-		-		-	Continuing	Continuing	0.200
Caldera Event: Envelope Analysis	TBD	SPGlobal : Chantilly, VA	-	-		0.200		-		-		-	Continuing	Continuing	0.200
Caldera Event: Mission and System Integration	TBD	SPGlobal : Chantilly, VA	-	-		0.625		-		-		-	Continuing	Continuing	0.625
Caldera Event: Operations Mission Assessment and Demonstration	TBD	SPGlobal : Chantilly, VA	-	-		0.625		-		-		-	Continuing	Continuing	0.625
<b>Subtotal</b>			-	-		5.750		-		-		-	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	-		5.750		-		-		-	Continuing	Continuing	N/A
<b>Remarks</b>															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2019 Air Force

Date: February 2018

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0207277F / ISR Innovations

Project (Number/Name)

675373 / ISR Innovations Program

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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>675373 ISR Innovations Program</b>																												
NOWcasting: Optimize SBIRS ingestion																												
NOWcasting: Conduct Operational Utility Evaluation																												
NOWcasting: Develop Afghanistan Window																												
NOWcasting: Develop Africa Window																												
ASAPS: Develop lightning sensing capability																												
Caldera Event: Advantaged Reference Node and Precision Navigation Development																												
Caldera Event: System Analysis and Improvement																												
Caldera Event: Envelope Analysis																												
Caldera Event: Mission and System Integration																												
Caldera Event: Operations Mission Assessment and Demonstration																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Air Force		<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207277F / <i>ISR Innovations</i>	<b>Project (Number/Name)</b> 675373 / <i>ISR Innovations Program</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>675373 ISR Innovations Program</b>				
NOWcasting: Optimize SBIRS ingestion	1	2018	2	2018
NOWcasting: Conduct Operational Utility Evaluation	3	2018	4	2018
NOWcasting: Develop Afghanistan Window	3	2018	3	2018
NOWcasting: Develop Africa Window	4	2018	4	2018
ASAPS: Develop lightning sensing capability	1	2018	4	2018
Caldera Event: Advantaged Reference Node and Precision Navigation Development	1	2018	1	2018
Caldera Event: System Analysis and Improvement	1	2018	2	2018
Caldera Event: Envelope Analysis	1	2018	4	2018
Caldera Event: Mission and System Integration	1	2018	4	2018
Caldera Event: Operations Mission Assessment and Demonstration	2	2018	4	2018