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* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0305205F / *Endurance Unmanned Aerial Vehicles*							
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	-	50.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.000
67A026: *MAGIC*	-	50.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Medium Altitude Global ISR and Communications (MAGIC) project was an Air Force led technology and concept development to demonstrate the ability for a Remotely Piloted Aircraft (RPA) to stay airborne in the medium altitude structure for a multiple day duration mission with a minimum of 1,000 pounds payload capacity of intelligence, surveillance and reconnaissance sensor systems. The MAGIC concept was initiated by OSD/DDR&E in FY 2010 in response to the Combatant Commanders ranking this type of initiative as the highest priority for a Joint Concept and Technology Demonstration (JCTD). In FY 2011, the Air Force accepted this initiative as the sponsor and MAGIC was subsequently removed from consideration as a JCTD and transitioned into the Air Force as a developmental project.

The MAGIC project was intended to provide the USAF with data regarding sensor and aircraft performance parameters at a multiple day duration at medium altitude flight. The objectives laid out in the JCTD competition and selection of Aurora Flight Sciences (AFS)'s Orion RPA for the long endurance demonstration was managed by the 645th Aeronautical Systems Group (AESG).

In FY 2010, OSD/DDR&E (now ASD/R&E) provided $5M of initial funding to AFRL to initiate the MAGIC project. In FY 2011, ASD/R&E provided an additional $5M to keep the MAGIC project development moving forward. The Air Force provided $10M of FY 2011. Congressional Adds of $19M in FY 2012, $50M in FY 2013, $20M in FY 2015, $5M in FY 2016, and $50M in FY 2017 provided the Endurance UAV program manager with the funding for the continuation of the Orion RPA development and initiation of the three phase flight testing series.

Orion RPA flight test series and demonstrations were accomplished at Naval Air Weapons Station (NAWS) China Lake, CA between August 2013 and March 2015. The objectives to test/demonstrate basic air vehicle performance, expansion of the flight characteristic envelope, a multiple day sortie and integration of a nominal sensor payload were successfully accomplished on the prototype (Block 0) Orion RPA in a controlled environment non-representative of an operational setting. Subsequent development efforts concentrated on the validation of the Orion RPA system requirements and concept design/specifications for a follow-on air vehicle (Block 1) capable of operational deployment in the event that the Air Force chooses the Orion RPA as a quick reaction capable system for a theater of operation or a program of record. Currently, there is no validated requirement for the Orion RPA.

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 of subsequent fiscal year.

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* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305205F / *Endurance Unmanned Aerial Vehicles*

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	0.000	0.000	0.000	0.000
Current President's Budget	50.000	0.000	0.000	0.000	0.000
Total Adjustments	50.000	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	50.000	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

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 67A026: *MAGIC*		
Congressional Add: *MAGIC*	50.000	0.000
Congressional Add Subtotals for Project: 67A026	50.000	0.000
Congressional Add Totals for all Projects	50.000	0.000

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Congressional Add: MAGIC	50.000	0.000
FY 2017 Accomplishments: Initiated efforts to develop a deployable Block 1 Orion air vehicle including: • Design and manufacture of Block 1 airframe structural certification test articles • Preliminary Design Review of the Block 1 air vehicle • Critical Design Review of the Block 1 airframe		
FY 2018 Plans: N/A		
Congressional Adds Subtotals	50.000	0.000

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305205F / *Endurance Unmanned Aerial Vehicles*

E. Acquisition Strategy

There is currently no validated requirement for the Orion RPA. The concept for the Air Force to develop a long endurance, persistent ISR capability for the Combatant Commanders was an outgrowth of a JCTD started in FY 2010. Previous development efforts included: completion of studies analysis, development of a prototype air vehicle (Block 0), bench testing of engines and other aircraft components, ground continuity testing of select avionics, flight controls, and engine components, slow and high speed ground taxiing and a full flight series testing of the Orion RPA capabilities to include a multiple day, long duration flight demonstration. Starting with a portion of the FY 2015 funds, congressional adds have continued hardware and software engineering and development efforts towards operational airworthiness standards and mission requirements for a deployable air vehicle (Block 1).

F. Performance Metrics

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305205F / *Endurance Unmanned Aerial Vehicles*	**Project (Number/Name)** 67A026 / *MAGIC*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : Manassas, VA	-	-		-		-		-		-	Continuing	Continuing	-
MAGIC Block 1 Initial Design and Development	SS/CPFF	Aurora : Manassas, VA	-	0.959	Jun 2017	-		-		-		-	Continuing	Continuing	95.666
MAGIC Block 1 Product Design and Development	SS/CPFF	Aurora : Manassas, VA	-	45.000	Oct 2017	-		-		-		-	Continuing	Continuing	48.400
		Subtotal	-	45.959		-		-		-		-	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA	Allot	645 AESG : Dayton, OH	-	4.041	May 2018	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	4.041		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	50.000		0.000		-		-		-	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305205F / *Endurance Unmanned Aerial Vehicles*	**Project (Number/Name)** 67A026 / *MAGIC*

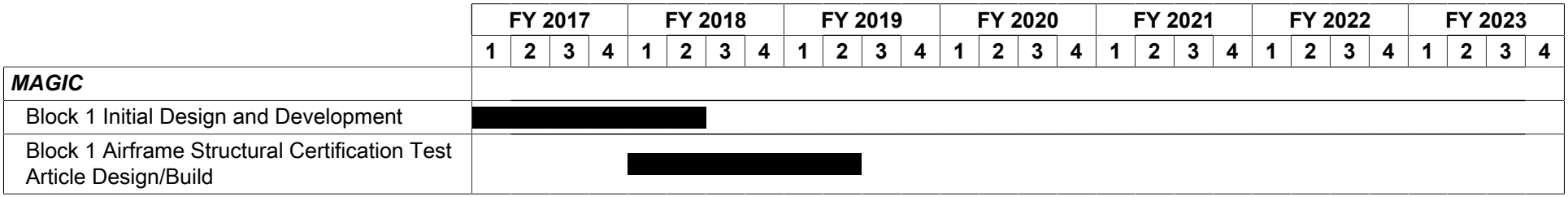

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305205F / *Endurance Unmanned Aerial Vehicles*	**Project (Number/Name)** 67A026 / *MAGIC*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MAGIC				
Block 1 Initial Design and Development	1	2017	2	2018
Block 1 Airframe Structural Certification Test Article Design/Build	1	2018	2	2019