

		ASN	2011-ESA-62-COA	
		Case Status	EXPIRED	
		Date Created	07/25/2011	
		Date Submitted	08/12/2011	
Proponent Organization		Sponsor	US Army Garrison, Redstone	
		Attn Of	(b) (6)	
		Address	IMSE-RED-PLA	
		Address2	Redstone Army Airfield, Building 4808	
		City	Redstone Arsenal	
		State	AL	
		Postal Code	35898-5000	
		Telephone	(256) 876-4300	
		Email	(b) (6)	
Declaration		Declaration(a)	Yes	
		Declaration(b)	Yes	
Point of Contact		Representative	(b) (6)	
		Address	Unmanned Aircraft Systems Project Office	
		Address2	SFAE-AV-UAS-GM	
		City	Redstone Arsenal	
		State	AL	
		Postal Code	35898	
		Telephone	(256) 313-5380	
		Email	(b) (6)	
Operational Description	Requested Effective Period	Beginning		
		End		
			Light out operation	No
			VFR operation	Yes
			IFR operation	No
			Day operation	Yes
			Night operation	Yes
			Program Executive Summary	Request a new of Certificate of Authorization based on cloned (COA)certificate (2010-ESA-2) signed 20 September 2010. Operations are performed by AAI Corporation personnel at Redstone Army Airfield. The crew includes Air Vehicle Operators (AVO's), Mission Payload Operators (MPO's), Mission Commanders (MC's) and a maintenance team. Operations are performed on a daily basis in support of research and development flight testing for the Unmanned Aircraft Systems Program Office (PM UAS).
		Operational Summary	Operations are research and development flight-testing. Approximate 200 test flights per year at approximately 300 flight hours per year (1.5hrs per flight) at Redstone Army Airfield and R2104 - A,C,D,E. Operations will be conducted 7 days a week, intermittently 24 hours a day. Operations will only be conducted when Redstone ATC is operational. Launch and recovery will be from Redstone AAF (HUA). UAS will fly directly into R2104 after launch and return via the same route. Altitude will be at or below 2500'.	
Location		State	AL	
		County	Madison	
		Nearest Airport	REDSTONE AAF	
		AOR	Alabama	
Class Of Airspace		Class-A		
		Class-B		
		Class-C		
		Class-D	Yes	
		Class-E		
		Class-G		
System Description		Aircraft Type	8063 - Shadow - RQ-7B	
		Aircraft Type And Model Description Attachment	1	
		Control Station Attachment	1	
		Communications System Attachment	1	
		List Certified Components (TSO) Attachment	1	
		Other Attachment	0	
Performance Characteristics		Climb Rate (feet/Minute)	500	
		Descent Rate (feet/Minute)	1000	
		Turn Rate (Degrees/Second)	9.0	
	Cruise Speed		Maximum	110
			Minimum	60
			Approach Speed	70
	Operating Attributes		Maximum MSL	20000
		Minimum MSL	685	
		Gross Takeoff Wt	386.0	
		Launch/Recovery Attachment	1	

Airworthiness		FAA Type Certificate	
		If No FAA Certificate (Public Aircraft Only) Attachment	1
Procedures		Lost Link/Mission Procedures Attachment	1
		Lost Communications Procedures Attachment	1
		Emergency Procedures Attachment	1
Avionics/Equipment		Equipment Suffix Type	U
		GPS	Yes
		Moving map indicator (Command Station)	Yes
		Tracking capability	Yes
		TCA/MCAS	No
		ELT	No
	Transponder	Transponder	Yes
		On	Yes
		Off	Yes
		Standby	Yes
		Ident	Yes
		Mode S	No
		Mode C	Yes
		Transponder Retuneable in Flight	Yes
Lights		Landing	No
		Position/Navigation	Yes
		Anti-collision	Yes
		Infrared (IR)	No
Spectrum Analysis Approval		Data Link	Yes
		Data Link Attachment	0
		Control Link(s)	Yes
		Control Link Attachment	0
		Operations utilizing Radio Control (R/C) frequencies as described in Title 47 CFR 95	No
		NTIA/FCC Authorization Attachment	5
ATC Communications	Transmitter VHF Band	VHF Band	Yes
		Quantity	3
		In-Flight Retunable	Yes
	Transmitter UHF Band	UHF Band	Yes
		Quantity	1
		In-Flight Retunable	Yes
	Transmitter HF band	HF Band	No
		Quantity	
		In-Flight Retunable	No
	Receiver VHF Band	VHF Band	Yes
		Quantity	3
		In-Flight Retunable	Yes
	Receiver UHF Band	UHF Band	Yes
		Quantity	1
		In-Flight Retunable	Yes
	Receiver HF band	HF Band	No
		Quantity	
		In-Flight Retunable	No
	Guard (Emergency) Frequencies VHF Band	VHF Band	No
		Quantity	
	Guard (Emergency) Frequencies UHF Band	UHF Band	No
		Quantity	

	Instantaneous Two-Way Voice	Direct to pilot	Yes
		SATCOM	No
		Relay via aircraft	No
Electronic Surveillance/ Detection Capability		EO/IR	Yes
		Terrain detection	Yes
		Weather/icing detection	No
		Radar	No
		Other Attachment	0
		Electronic detection systems	No
		Electronic detection systems attachment	0
		Radar observation	Yes
		NAS Operational Capability Attachment	0
Visual Surveillance/ Detection Capability	Maximum Distance from UA	Vertical	2500 Feet
		Horizontal	1.0 Nautical Miles
		Airborne based (Chase Aircraft)	No
		Ground based	Yes
		Visual observation from one or more ground sites	Yes
		Forward or side looking cameras	Yes
		Attachment for All	1
Aircraft Performance Recording		Flight data recording	Yes
		Control station recording	Yes
		Voice Recording	Yes
Flight Aircrew Qualifications	Pilots	Private (Written)	Yes
		Private (Certified)	Yes
		Instrument	No
		Commercial	No
		Air Transport	No
		Unique Trained Pilot	Yes
		Unique Trained Pilot Description	All crewmembers and observers are trained and evaluated under US Army regulations and guidelines.
		DOD certified/trained	Yes
		Other Certified Training	No
		Trained on FAR Part 91 Requirement	Yes
		Medical Certification Class (FAA or DOD equivalent)	2
		Currency Status	All crewmembers and observers maintain currency under US Army regulations and guidelines.
		Duty Time Restrictions	12 hours
		Single UAS Control	Yes
		UAS Description	Observers are trained under the rules and responsibilities described in 14 CFR 91.111 and 14 CFR 91.113. Observer duties are to visually monitor air traffic outside of R-2104 and communicate clearly to the operator any turning instructions required to stay clear of conflicting traffic.
		Total Numbers of UAS Controlled	1
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Special Circumstances		Special Circumstances	<p>The testing at Redstone Army Airfield is critical to supporting the GWOT.</p> <p>Cloned from application for certificate (2010-ESA-2), data updated.</p> <p>Application is a clone. A New COA is needed to continue flight operations supporting critical research and development flight-testing.</p> <p>Night Operation Mitigations:</p> <ol style="list-style-type: none"> 1. UA launch and recovery operations will take place wholly within controlled airspace (Redstone AAF Class D) 2. Ground observer(s) will be in place and have communications with Redstone ATCT and the ground control station. 3. The UA ground observer(s) will be positioned at the dedicated location for a minimum of one hour before the UA operation, to ensure night vision adaptation has occurred. 4. In addition to ground observer(s), the Redstone ATCT will monitor DBRITE display located in the ATCT cab as a supplement to ensure no civil traffic is approaching the Redstone AAF Class D. Additionally, information from the DBRITE will be used to reduce the effects of the visual observer's position being offset from the UA location, and to help reduce possible nighttime optical illusions. 5. UAS operations will not occur within one hour prior to and one hour after published sunset times in order to avoid operations during civil twilight hours. 6. The ground observer(s) will undergo additional training on the lighting configuration of Shadow UA to ensure proper recognition during night flights. 7. UA will spend less than thirty minutes in the Redstone AAF Class D airspace for launch and less than thirty minutes in the Redstone AAF Class D airspace during recovery operations. 8. There will be no UAS training operations within the Redstone AAF Class D airspace: all training will occur within the