

		ASN	2011-CSA-71-COA
		Case Status	EXPIRED
		Date Created	09/26/2011
		Date Submitted	09/26/2011
Proponent Organization		Sponsor	Fort Sill Garrison Installation Management Command
		Attn Of	(b) (6)
		Address	BLDG 4907
		Address2	
		City	Fort Sill
		State	OK
		Postal Code	73507
		Telephone	(580) 442-2387
		Email	(b) (6)
Declaration		Declaration(a)	Yes
		Declaration(b)	Yes
Point of Contact		Representative	(b) (6)
		Address	BLDG 4907
		Address2	
		City	Fort Sill
		State	OK
		Postal Code	73507
		Telephone	(580) 442-2387
		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	Fort Sill request Certificate of Authorization (COA) to operate the RQ-7B Shadow Unmanned Aircraft System (UAS) between Henry Post Army Airfield and Restricted Area R5601. COA is in support of Army National Guard training and certification of UAS crew members for combat deployments. The COA is required to allow the UAS to transition to/from R5601 and the Henry Post Class Delta Surface area during day/night operations. The flights will be monitored by ground observers and DOD employed air traffic controllers in the control tower. In addition to the visual observations, airport surveillance radar will be used to track/monitor the UAS flights by DOD employed air traffic controllers. Additional ground observers will be used during night operations to ensure visual continuity in conjunction with radar. All training operations will be conducted after the UAS is established within restricted airspace (R5601). UAS certification requires operators to become familiar with procedures and terrain features which will enable them to develop intelligence gathering techniques.
		Operational Summary	The UAS flights will originate and terminate at Henry Post Army Airfield (HPAAF). Immediately after departure the UAS will enter R5601 and remain within restricted airspace during the operation. When recovering, the UAS will depart R5601 and enter directly into the HPAAF Class Delta Surface Area without interference to manned aircraft. HPAAF has designated Class D airspace from surface to 3700ft MSL. It is approximately 3 miles from the departure/arrival point at HPAAF to restricted airspace. The RQ-7B Shadow will operate from 3000 to 10000ft AGL when operating in R5601. Hours or flight duration will vary, but only one UAS will be launched/recovered at one time. All flight missions and requests for UAS and other aircraft operations will be reviewed, deconflicted and approved by HPAAF ATC control tower. All flight departures and arrivals will be cleared by HPAAF ATC tower. ATC will not allow other aircraft in the Class D airspace when a UAS is departing or landing; specifically, while the UAS is in the established arrival/departure pattern within the Class Delta Surface area, all other aircraft will be held on the ground or outside the surface area until the UAS has landed or departed into restricted airspace. Aircraft Operator (AO) will advise HPAAF ATC 10 minutes prior to recovery to allow other aircraft to land or depart Class D airspace. UAS will not be cleared for departure or landing until after all runways and taxiways are clear of all aircraft. UAS ground observers (GO) must be positioned so they can maintain visual contact. GO will have binoculars to improve visual tracking of the UAS. For night operations GO will have NVD devices to improve night vision. GO will have access to several range towers and observation posts within R-5601. All UAS ground observers are within 1 Nautical mile during night training. These locations and enhanced visual devices will help insure visual contact with the UAS systems. Additional GO sites will be established if the UAS is flown where observation is limited and visual coverage is required. The AO will use the optical ability of the UAS to supplement the GO surveillance capability. The GO, AO and MC will use radios, and land lines when available to communicate and coordinate UAS operations with HPAAF ATC. The Air Traffic Control Surveillance Radar will be used by Fort Sill Approach Control (ARAC) to monitor the UAS operations throughout the missions. The UAS operations in R5601 will be de-conflicted from other activities in advance. This will be de-conflicted during operation planning meetings prior to UAS training mission approval. Any individual can halt any training operation if they feel a action or practice may injure anyone or cause property or equipment damage.
	Location	State	OK
		County	Comanche
		Nearest Airport	HUSCHER FIELD
		AOR	Oklahoma
	Class Of Airspace	Class-A	
		Class-B	
		Class-C	
		Class-D	Yes
		Class-E	
		Class-G	

System Description		Aircraft Type	102154768 - Shadow
		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)	600
		Turn Rate (Degrees/Second)	6.0
	Cruise Speed	Maximum	118
		Minimum	60
		Approach Speed	70
	Operating Attributes	Maximum MSL	15000
		Minimum MSL	0
		Gross Takeoff Wt	375.0
		Launch/Recovery Attachment	1
Airworthiness		FAA Type Certificate	
		If No FAA Certificate (Public Aircraft Only) Attachment	1
Procedures		Lost Link/Mission Procedures Attachment	3
		Lost Communications Procedures Attachment	2
		Emergency Procedures Attachment	1
Avionics/Equipment		Equipment Suffix Type	A
		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	Yes
		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	1
ATC Communications	Transmitter VHF Band	VHF Band	Yes
		Quantity	4
		In-Flight Retunable	Yes
	Transmitter UHF Band	UHF Band	Yes
		Quantity	4

		In-Flight Retunable	Yes
	Transmitter HF band	HF Band	No
		Quantity	
		In-Flight Retunable	No
	Receiver VHF Band	VHF Band	Yes
		Quantity	4
		In-Flight Retunable	Yes
	Receiver UHF Band	UHF Band	Yes
		Quantity	4
		In-Flight Retunable	Yes
	Receiver HF band	HF Band	No
		Quantity	
		In-Flight Retunable	No
	Guard (Emergency) Frequencies VHF Band	VHF Band	Yes
		Quantity	1
	Guard (Emergency) Frequencies UHF Band	UHF Band	Yes
		Quantity	1
	Instantaneous Two-Way Voice	Direct to pilot	Yes
		SATCOM	No
		Relay via aircraft	No
Electronic Surveillance/ Detection Capability		EO/ R	Yes
		Terrain detection	No
		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	3700 Feet
		Horizontal	3.0 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)	No
		Private (Certified)	No
		Instrument	No
		Commercial	No
		Air Transport	No
		Unique Trained Pilot	No
		Unique Trained Pilot Description	UAS Crew Members are trained and certified in accordance with DOD and Army Regulations.
		DOD certified/trained	Yes
		Other Certified Training	Yes
		Trained on FAR Part 91 Requirement	Yes

		Medical Certification Class (FAA or DOD equivalent)	3
		Currency Status	UAS Crew Members maintain currency in accordance with DOD and Army Regulations.
		Duty Time Restrictions	Duty time restrictions are maintained in accordance with DOD and Army Regulations.
		Single UAS Control	Yes
		UAS Description	Crew members are responsible for the safe operation of one UAS per mission.
		Total Numbers of UAS Controlled	1
	Observers	Private (Written)	No
		Private (Certified)	No
		Instrument	No
		Commercial	No
		Air Transport	No
		Unique Trained Pilot	No
		Unique Trained Pilot Description	UAS Crew Members are trained and certified in accordance with DOD and Army Regulations.
		DOD certified/trained	Yes
		Other Certified Training	Yes
		Trained on FAR Part 91 Requirement	Yes
		DOD Certified Training Attachment	0
		Medical Certification Class (FAA or DOD equivalent)	3
		Currency Status	UAS Crew Members maintain currency in accordance with DOD and Army Regulations.
		Duty Time Restrictions	Duty time restrictions are maintained in accordance with DOD and Army Regulations.
		Single UAS Control	Yes
		UAS Description	Crew members are responsible for the safe operation of one UAS per mission.
		Total Numbers of UAS Controlled	1
Special Circumstances		Special Circumstances	<p>Medical Certifications for pilots and observers are per DOD regulations. UAS operations are not authorized when ATC is closed. R5601 has a common boundary with Henry Post Army Airfield Class D Surface Area. This COA is a replacement for 2010-CSA-27-COA which expires on 14 Oct 2011.</p> <p>Answers to RFIs on 13 Oct 11</p> <p>The Lost Link and Ditch Point are identical and in the Attached Document, they are N34 43'10.56" and W 098 27' 49.18". The UAS is programmed to execute lost link procedures within two seconds on its automated route structure. Picture uploaded under procedures, lost link depicting this point with label. See file Lost Link MSN (jpg).</p> <p>The purpose of the observers are to look for an report any aircraft that are in the area of operation. The surface area is sterilized of all other manned aircraft prior to departure or recovery. The observers are placed .75 miles from the departure and arrival points on the route structure, at least 30 minutes prior to mission start to acclimate to the low light environment. The PIC, control tower and observers (on multichannel portable radios) utilize a common frequency and designated locations. The observers report their position and location of unauthorized aircraft to the PIC and ATC. The UAS then would immediately return to restricted airspace until unidentified aircraft was no longer a factor. The Class D surface is surrounded on three sides by restricted airspace and it is a military airfield, the furthest point from departure to restricted airspace on the departure and arrival routes is 1.75 miles. The control tower in addition to visually searching for unauthorized aircraft in the sterile Class D Surface Area have the DBRITE as a tool. The Army Radar Approach Control also monitors the airspace for unauthorized activity.</p> <p>These procedures are covered in the required MOA with the UAS unit Commanders.</p>

Flight Operations Area/Plan

Type	User Defin Point	Loc ID	Degree	Distance	Latitude	Longitude	MSL Ceilin
SUA							
SUA							
SUA							
SUA							
SUA							
SUA							

<u>MSL Floor</u>	<u>Maximum</u>	<u>Minimum</u>	<u>Radius</u>	<u>SUA Description</u>
------------------	----------------	----------------	---------------	------------------------

--	--	--	--	--

Restricted  
Restricted  
Restricted  
Restricted  
Restricted  
Restricted

area - 5601C: BEGINNING AT LAT. 34-38-15N, LONG. 98-37-57W; TO LAT. 34-38-15N, LONG. 98-4  
area - 5601A: BEGINNING AT LAT. 34-38-15N, LONG. 98-17-1W; TO LAT. 34-38-15N, LONG. 98-20  
area - 5601B: BEGINNING AT LAT. 34-40-47N, LONG. 98-23-9W; THENCE COUNTERCLOCKWISE  
area - 5601D: BEGINNING AT LAT. 34-38-15N, LONG. 98-45-21W; TO LAT. 34-38-15N, LONG. 98-4  
area - 5601E: BEGINNING AT LAT. 34-38-15N, LONG. 98-37-58W; TO LAT. 34-36-0N, LONG. 98-46  
area - 5601F: BEGINNING AT LAT. 34-46-24N, LONG. 98-52-0W; THENCE CLOCKWISE VIA THE 4



45-21W; TO LAT. 34-41-47N, LONG. 98-45-21W; TO LAT. 34-41-47N, LONG. 98-44-17W; TO LAT. 34-40-56W; TO LAT. 34-38-30N, LONG. 98-21-41W; TO LAT. 34-38-50N, LONG. 98-22-6W; TO LAT. 34-38-50N ALONG AN ARC 3-MILE RADIUS CENTERED LAT. 34-40-12N, LONG. 98-26-18W; TO LAT. 34-38-48-1W; TO LAT. 34-42-15N, LONG. 98-50-1W; TO LAT. 34-45-0N, LONG. 98-40-31W; TO LAT. 34-43-46W; TO LAT. 34-38-15N, LONG. 98-48-1W; TO LAT. 34-38-15N, LONG. 98-45-21W; TO THE POINT OF A 49 NM ARC OF SPS VORTAC, TO LAT. 34-47-0N, LONG. 98-51-0W; TO LAT. 34-43-46N, LONG. 98-

4-41-21N, LONG. 98-44-17W; TO LAT. 34-41-21N, LONG. 98-40-36W; TO LAT. 34-40-54N, LONG. 9  
 9-53N, LONG. 98-22-16W; TO LAT. 34-40-47N, LONG. 98-23-9W; THENCE NORTH ALONG THE W  
 -15N, LONG. 98-26-19W; TO LAT. 34-38-15N, LONG. 98-37-57W; THENCE NORTH ALONG OKLAH  
 3-30N, LONG. 98-35-40W; TO LAT. 34-43-21N, LONG. 98-36-2W; TO LAT. 34-42-7N, LONG. 98-37-2  
 NT OF BEGINNING.  
 -49-55W; THENCE CLOCKWISE VIA THE 46 NM ARC OF SPS VORTAC, TO LAT. 34-45-3N, LONG

8-40-36W; TO LAT. 34-40-54N, LONG. 98-37-54W; THENCE SOUTH ALONG OKLAHOMA ST HWY  
/ESTERN EDGE OF INTERSTATE HWY 40. LAT. 34-43-30N, LONG. 98-24-1W; TO LAT. 34-43-30N  
IOMA STATE HIGHWAY NO 115. LAT. 34-40-54N, LONG. 98-37-54W; TO LAT. 34-42-7N, LONG. 98  
:0W; TO LAT. 34-40-54N, LONG. 98-37-54W; TO LAT. 34-40-54N, LONG. 98-40-36W; TO LAT. 34-41  
i. 98-29-46W; TO LAT. 34-46-15N, LONG. 98-25-1W; TO LAT. 34-47-0N, LONG. 98-17-46W; TO LAT

115 TO THE PT OF BEGINNING

, LONG. 98-21-21W; TO LAT. 34-43-45N, LONG. 98-21-1W; TO LAT. 34-46-6N, LONG. 98-21-1W; TO  
37-20W; TO LAT. 34-43-21N, LONG. 98-36-2W; TO LAT. 34-43-30N, LONG. 98-35-40W; TO LAT. 3  
41-21N, LONG. 98-40-36W; TO LAT. 34-41-21N, LONG. 98-44-17W; TO LAT. 34-41-47N, LONG. 98-4  
. 34-46-45N, LONG. 98-17-1W; TO LAT. 34-46-6N, LONG. 98-17-1W; TO LAT. 34-46-6N, LONG. 98-

TO LAT. 34-46-6N, LONG. 98-17-1W; TO THE POINT OF BEGINNING.

4-43-30N, LONG. 98-24-1W; THENCE SOUTH ALONG THE WESTERN EDGE OF INTERSTATE HIGHWAY 4-17W; TO LAT. 34-41-47N, LONG. 98-45-21W; TO THE POINT OF BEGINNING.

21-1W; TO LAT. 34-43-45N, LONG. 98-21-1W; TO LAT. 34-43-30N, LONG. 98-21-21W; TO LAT. 34-4

GHWAY 44 TO THE POINT OF BEGINNING.

43-30N, LONG. 98-35-40W; TO LAT. 34-45-0N, LONG. 98-40-31W; TO LAT. 34-42-15N, LONG. 98-5

0-1W; TO THE POINT OF BEGINNING. EXCLUDING THAT AIRSPACE: (1) BELOW 5500 FEET MSI

L BEGINNING AT 34-44-28N, 98-46-16W; THENCE CLOCKWISE VIA THE 46 NM ARC OF SPS VOR



!TAC, TO 34-45-09N, 98-30-57W; TO 34-43-30N, 98-30-00W; TO 34-43-30N, 98-35-40W; TO 34-45-C

00N, 98-40-31W; TO 34-43-09N, 98-46-56W; TO THE POINT OF BEGINNING; AND, (2) BELOW 3500

0 FEET MSL WITHIN A 1 NM RADIUS OF 34-46-46N, 98-17-46W.