		ASN	2009-CSA-57-COA
		Case Status	EXPIRED
		Date Created	07/08/2009
		Date Submitted	07/08/2009
Proponent Organization		Sponsor	NMSU-PSL
		Attn Of	(b) (6)
		Address	21st Century Aerospace
		Address2	Mail Stop 3548 NMSU
		City	Las Cruces
		State	NM
		Postal Code	88003
		Telephone	(b) (6)
		Email	(b) (6)
Declaration		Declaration(a)	Yes
		Declaration(b)	Yes
Point of Contact		Representative	(b)
		Address	NMSU/PSL 21 Century Aerospace
		Address2	Mail Stop 3548 NMSU
		City	Las Cruces
		State	NM
		Postal Code	88003
		Telephone	(b) (6)
		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	No
		Program Executive Summary	Flight operations of the Aerostar UA is for Research and Development activities, training of aircrew personnel, and to maintain aircrew flight proficiency and currency. Flight operations generally occur on a weekly basis with an average of approximately 10 to 12 flights per month.
		Operational Summary	Takeoffs and landings for the vast majority of Aerostar flight operations will be at the Las Cruces, NM Airport (LRU). On some very infrequent occasions takeoffs and landings will be at the Playas, NM Airport (86E), a private airport. Both of these airports are located within Class G airspace and the air traffic volume is low. These airports have been used for Aerostar flights in the past. Flight routes and altitudes within the operating airspace will vary depending on mission objectives. During takeoff and landing the flights will be within Class G Airspace. At other times the flight will be within Class E Airspace. There will be no flight operations over other than sparsely populated surface areas.
	Location	State	NM
		County	Luna
		Nearest Airport	LUNA LANDING
		AOR	New Mexico
	Class Of Airspace	Class-A	
		Class-B	
		Class-C	
		Class-D	
		Class-E	Yes
		Class-G	Yes
System Description		Aircraft Type	
		Aircraft Type And Model Description Attachment	2
		Control Station Attachment	1
		Communications System Attachment	1
		List Certified Components (TSO) Attachment	1
		Other Attachment	0
Performance Characteristics		Climb Rate (feet/Minute)	(b
		Descent Rate (feet/Minute)	(b
		Turn Rate (Degrees/Second)	(
	Cruise Speed	Maximum	80
		Minimum	55
		Approach Speed	60
	Operating Attributes	Maximum MSL	17500
		Minimum MSL	5700
		Gross Takeoff Wt	440.0
		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	No
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	1
ATC Communications	Transmitter VHF Band	VHF Band	No
		Quantity	
		In-Flight Retunable	No
	Transmitter UHF Band	UHF Band	No
		Quantity	
		In-Flight Retunable	No
	Transmitter HF band	HF Band	No
		Quantity	
		In-Flight Retunable	No
	Receiver VHF Band	VHF Band	No
		Quantity	
		In-Flight Retunable	No
	Receiver UHF Band	UHF Band	No
		Quantity	
		In-Flight Retunable	No
	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	No
		SATCOM	No
		Relay via aircraft	No
Electronic Surveillance/ Detection Capability		EO/IR	Yes
		Terrain detection	No
		Weather/icing detection	No
		Radar	No
		Other Attachment	0

		Electronic detection systems	No
		Electronic detection systems attachment	0
		Radar observation	No
		NAS Operational Capability Attachment	1
Visual Surveillance/ Detection Capability	Maximum Distance from UA	Vertical	3000 Feet
		Horizontal	1.0 Nautical Miles
		Airborne based (Chase Aircraft)	Yes
		Ground based	Yes
		Visual observation from one or more ground sites	Yes
		Forward or side looking cameras	No
		Attachment for All	0
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	Yes
		Commercial	Yes
		Air Transport	No
		Unique Trained Pilot	No
		Unique Trained Pilot Description	The external pilot has completed the military equivalent of the FAA pilot ground school. The internal pilots are FAA rated or have achieved an equivalent military pilot rating.
		DOD certified/trained	Yes
		Other Certified Training	Yes
		Trained on FAR Part 91 Requirement	Yes
		Medical Certification Class (FAA or DOD equivalent)	2
		Currency Status	1. External Pilot (EP) - The Aerostar EP shall maintain currency. In order to maintain currency the Aerostar UA EP shall perform a minimum of three qualified proficiency events within the past 90 days operating the Aerostar or through the use of a compatible simulator. A single proficiency event will include a takeoff and landing, at least 1 hour of flight operation, and transfer of flight control to the IP and reacquiring flight control from the IP. 2. Internal Pilot (IP) - The Aerostar IP shall maintain currency. In order to maintain currency the Aerostar UA IP shall have performed a minimum of three qualified proficiency events within the past 90 days through flight operation of the Aerostar or through use of a compatible simulator. A single proficiency event will include acquiring flight control from the EP, a minimum of 1 hour of flight operation, and transfer of flight control to the EP.
		Duty Time Restrictions	1. Crew rest: Adequate crew rest is necessary for safe and effective operation of the Aerostar UAS. Crewmembers that are fatigued are more likely to make mistakes and jeopardize safety and the mission. Crewmembers shall monitor their schedules and raise awareness if they cannot achieve adequate crew rest. Crew rest time is 8 hours of uninterrupted time where the crewmember does not have tasking to accomplish and is allowed to rest. Should a crewmember change shift from one cycle (day or night or defined shift) to another, 12 hours of rest shall be used instead of 8. 2. Duty Day: The duty day is the period of time where the crewmember is present and engaged in system setup, planning, pre-flight briefing, mission flight, post-flight debriefing, and cleanup. Excessive time on duty leads to fatigue and decreases effectiveness. Periodic breaks including extended breaks for meals should be afforded the crewmembers to allow them to refresh their efforts and not become task-saturated. A duty day of no more than 10 hours with periodic breaks should not overly fatigue the crew. Such a schedule should allow sufficient time to recover and be sustainable for a 6 day work week. A duty day between 10 and 16 hours with periodic breaks should be sustainable so long as 8 hours of crew rest is provided each day. Crewmembers should evaluate their tasking and rest schedule to determine their ability to perform their duties. Crewmembers should work a reduced week if continually tasked at this level. A duty day greater than 16 hours will be fatiguing to the crewmember and will also disrupt their sleep cycle, contributing to greater fatigue. Should a duty day greater than 16 hours be necessary, care should be exercised that the crewmember be adequately rested before the day, be afforded periodic breaks and recovery time during the day, and have a minimum of 12 hours of crew rest after the duty day to recover
		Single UAS Control	Yes
		UAS Description	
		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	
		DOD certified/trained	No
		Other Certified Training	No
		Trained on FAR Part 91 Requirement	Yes
		DOD Certified Training Attachment	0
		Medical Certification Class (FAA or DOD equivalent)	2
		Currency Status	Visual observers (VO) - All shall maintain currency. In order to maintain currency a VO must have been a VO for an Aerostar UA flight operation or participated in VO refresher training within the past 90 days.
		Duty Time Restrictions	1. Visual Observers Rest: Adequate visual observer rest is necessary for the Visual observer to adequately provide visual observer see and avoid responsibilities. Visual observers that are fatigued are more likely to make mistakes and adversely affect flight operation safety. Visual observers should monitor their schedules and raise awareness if they cannot achieve adequate visual observer rest. Visual observer rest time is 8 hours of uninterrupted time where the visual observer does not have tasking to accomplish and is allowed to rest. Should a visual observer change shift from one cycle (day or night or defined shift) to another, 12 hours of rest shall be used instead of 8. 2. Duty Day: The duty day is the period of time where the visual observer is present and engaged in system setup, planning, preflight briefing, mission flight, post-flight debriefing, and cleanup. Excessive time on duty leads to fatigue and decreased effectiveness. Periodic breaks including extended breaks for meals should be afforded the visual observers to allow them to refresh their efforts and not become task-saturated. A duty day less than 10 hours with periodic breaks should not overly fatigue the visual observer. Such a schedule should allow sufficient time to recover and be sustainable for a 6 day work week. A duty day between 10 and 16 hours with periodic breaks should be sustainable so long as 8 hours of crew rest is provided each day. Crewmembers should evaluate their tasking and rest schedule to determine their ability to perform their duties. Visual observers should work a reduced week if continually tasked at this level. A duty day greater than 16 hours will be fatiguing to the visual observer and will also disrupt their sleep cycle, contributing to greater fatigue. Should a duty day greater than 16 hours be necessary, care should be exercised that the visual observer be adequately rested before the day, be afforded periodic breaks and recovery time during the day, and have a minimum of 12 hours of visual observer rest after the duty day to recover.
		Single UAS Control	Yes
		UAS Description	
		Total Numbers of UAS Controlled	1
Special Circumstances		Special Circumstances	This COA Application (2009/2010) is a renewal requrest for the COA issued to NMSU for operation of the Aerostar UA operations by New Mexico State University under the FAA issued 2008/2009 COA. The Aerostar UA, aircrew qualifications and requirements, visual observer qualificaitons and requiremens, contingency procedures, and operating airspace are the same. In addition to always having visual observation radar monitoring of most flights is provide, thereby enhancing safety. ATC Communications - There is a VHF aircraft radio transmitter and receiver in the GCS. The Las Cruces, NM Airport is located within the boundary of Albuquerque's ARTCC's Sector 19. When Operating the Aerostar UA within the airspace controlled by Sector 19 the Aerostar pilot is able to communicate with Sector 19 on 123.8 directly, as the GCS, located on the Las Cruces Airport, has line of sight with the FAA's Remote Control Air-Ground (RCAG) site. However, when operating within some of the Aerostar Operations Area the airspace will be controlled by a different sector within Albuquerque ARTCC and no direct communication between the Aerostar pilot and ATC is possible. Electronic Surveillance/Detection Capability - Ground Based - Radar Observation - The portable ground based RADAR system (Lockheed Martin PSTAR - G1) that NMSU possess is portable and on most occasions is used to supplement visual observer capabilities; however, there are times when this radar is not used during Aerostar flight operations. Flight Aircrew Qualifications - Not all aerostar pilots possess the same degree of qualifications; however the minimum qualification that any Aerostar pilot possesses is the individual has taken and passed the FAA pilot ground school course or the military equivalent of this course. The PIC shall be an individual who possess an FAA instrument rating for a manned aircraft.

Flight Operations Area/Plan

Type	User Defin	Point	Loc ID	Degree	Distance	Latitude	Longitude	MSL Ceilin	MSL Floor
USER DEFINED ARE		ALPHA		1					
				2					
				3					
				4					
				5					
				6					
				7					
				8					
				9					
				10					
				11					
USER DEFINED ARE		BRAVO		1					
				2					
				3					
				4					
				5					
				6					
				7					
USER DEFINED ARE		DELTA ONE		1					
USER DEFINED ARE		DELTA TWO		1					
USER DEFINED ARE		DELTA THREE		1					
USER DEFINED ARE		ECHO		1					
				2					
				3					
				4					
				5					
				6					
				7					
				8					

Total Map Attachmen 1

Maximum	Minimum S	Radius	SUA Description		
		32-30-00.00N	109-00-00.00W	17500	0
		32-30-00.00N	106-42-00.00W	17500	0
		32-19-30.00N	106-39-32.00W	17500	0
		32-18-00.00N	106-34-02.00W	17500	0
		32-11-00.00N	106-34-00.00W	17500	0
		32-04-00.00N	106-48-00.00W	17500	0
		31-47-24.00N	107-00-00.00W	17500	0
		31-47-24.00N	108-15-00.00W	17500	0
		31-20-00.00N	108-15-00.00W	17500	0
		31-20-00.00N	109-00-00.00W	17500	0
		32-30-00.00N	109-00-00.00W	17500	0
		33-27-00.00N	108-04-00.00W	17500	0
		33-27-00.00N	106-49-00.00W	17500	0
		33-13-00.00N	106-52-02.00W	17500	0
		32-30-00.00N	106-42-00.00W	17500	0
		32-30-00.00N	109-00-00.00W	17500	0
		32-40-00.00N	109-00-00.00W	17500	0
		33-27-00.00N	108-04-00.00W	17500	0
		32-30-00.00N	106-41-00.00W	1500	0
		32-26-35.00N	106-40-47.00W	1500	0
		32-23-49.00N	106-41-29.00W	1500	0
		32-36-00.00N	106-06-02.00W	17500	0
		32-36-00.00N	106-00-02.00W	17500	0
		32-27-49.00N	106-00-02.00W	17500	0
		32-28-00.00N	106-02-02.00W	17500	0
		32-15-00.00N	106-10-02.00W	17500	0
		32-15-00.00N	106-12-00.00W	17500	0
		32-24-48.00N	106-09-02.00W	17500	0
		32-36-00.00N	106-06-02.00W	17500	0

80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	2.0
80	55	2.0
80	55	2.0
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	
80	55	