

CERTIFICATE OF WAIVER OR AUTHORIZATION

ISSUED TO

New Mexico State University – Physical Science Laboratory

ADDRESS

P. O. Box 30002, Stewart & Espina Streets
Las Cruces, New Mexico 88003-8002
Attn: (b) (6)

This certificate is issued for the operations specifically described hereinafter. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate, and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate.

OPERATIONS AUTHORIZED

Operation of the Aerostar UAS in Class G and E airspace from surface to 17,500 feet Mean Sea Level (MSL) under the jurisdiction of Albuquerque Air Route Traffic Control Center (ARTCC) (ZAB). See Special Provisions.

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

N/A

STANDARD PROVISIONS

1. A copy of the application made for this certificate shall be attached and become a part hereof.
2. This certificate shall be presented for inspection upon the request of any authorized representative of the Federal Aviation Administration, or of any State or municipal official charged with the duty of enforcing local laws or regulations.
3. The holder of this certificate shall be responsible for the strict observance of the terms and provisions contained herein.
4. This certificate is nontransferable.

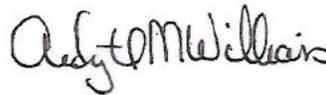
Note-This certificate constitutes a waiver of those Federal rules or regulations specifically referred to above. It does not constitute a waiver of any State law or local ordinance.

SPECIAL PROVISIONS

Special Provisions are set forth and attached.

This certificate 2008-CSA-6 (Rev 1) is effective from September 25, 2008 through September 24, 2009 and is subject to cancellation at any time upon notice by the Administrator or his/her authorized representative.

BY DIRECTION OF THE ADMINISTRATOR



FAA Headquarters, AJR-36
(Region)

Ardyth Williams
(Signature)

September 24, 2008
(Date)

Air Traffic Manager, Unmanned Aircraft Systems
(Title)

ATTACHMENT to FAA FORM 7711-1**ISSUED TO:** New Mexico State University – Physical Science Laboratory**ADDRESS:** P. O. Box 30002, Stewart & Espina Streets
Las Cruces, New Mexico 88003-8002
Attn: (b) (6)**NAME:** Federal Aviation Administration (FAA) Certificate of Authorization (COA) for Aerostar Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS) outside of restricted/warning area airspace.**ACTIVITY:** Operation of the Aerostar UAS in Class G and E airspace identified in Attachment 1 from surface to 17,500 feet Mean Sea Level (MSL) under the jurisdiction of Albuquerque Air Route Traffic Control Center (ARTCC) (ZAB).**PURPOSE:** To prescribe operating requirements in the NAS (outside of restricted and/or warning area airspace) for the purpose of training and/or operational flights.**DATES OF USE:** This COA 2008-CSA-6 (Rev 1) is valid from September 25, 2008, through September 24, 2009. Should a renewal become necessary, the proponent shall advise the FAA, in writing, no later than 60 days prior to the requested effective date.**GENERAL PROVISIONS:**

- The review of this activity is based on our current understanding of the UAS operations, and the impact of such operations in the NAS, and therefore should not be considered a precedent for future operations. As changes occur in the UAS industry, or in our understanding of it, there may be changes to the limitations and conditions for similar operations.
- All personnel connected with the UAS operation must comply with the contents of this authorization and its special provisions.
- This COA will be reviewed and amended as necessary to conform to changing UAS policy and guidance.

SAFETY PROVISIONS:

Unmanned Aircraft (UA) have no on-board pilot to perform see-and-avoid responsibilities, and therefore, when operating outside of restricted/warning/Class A airspace areas, special provisions must be made to ensure an equivalent level of safety exists for operations had a pilot been on board. In accordance with 14 CFR Part 91, General Operating and Flight Rules, Subpart J-Waivers, 91.903, Policy and Procedures, the following provisions provide acceptable mitigation of 14 CFR Part 91.113 and must be complied with:

- Visual Observers, either ground-based or airborne, must be used.
- UAS pilots will ensure there is a safe operating distance between manned and unmanned aircraft at all times in accordance with 14 CFR 91.111, *Operating Near Other Aircraft*, and 14 CFR 91.113, *Right-of-Way Rules*. Additionally, UAS operations are advised to operate well clear of all known manned aircraft operations.
- The applicant and/or its representatives are responsible for collision avoidance with all aircraft, other aviation operations, and the safety of persons or property on the surface.

AIRWORTHINESS CERTIFICATION PROVISIONS:

- UA must be shown to be airworthy to conduct flight operations in the NAS.
- Public Use Aircraft applications must contain one of the following:
 - A civil airworthiness certification from the FAA, or
 - A statement specifying that the Department of Defense Handbook "Airworthiness Certification Criteria" (MIL-HDBK-516), as amended, was used to certify the aircraft or equivalent method of certification.

PILOT / OBSERVER PROVISIONS:

- **Pilot Qualifications:** UA pilots interacting with Air Traffic Control (ATC) shall have sufficient expertise to perform that task readily. Pilots must have an understanding of and comply with Federal Aviation Regulations and Military Regulations applicable to the airspace where the UAS will operate. Pilots must have in their possession a current second class (or higher) airman medical certificate that has been issued under 14 CFR 67, Medical Standards and Certification, or a military equivalent. 14 CFR 91.17, Alcohol or Drugs, applies to UA pilots.
- **Observer Qualifications:** Observers must have been provided with sufficient training to communicate clearly to the pilot any turning instructions required to stay clear of conflicting traffic. Observers will receive training on rules and responsibilities described in 14 CFR 91.111, *Operating Near Other Aircraft*, and 14 CFR 91.113, *Right-of-Way Rules*. Observers must have in their possession a current second class (or higher) airman medical certificate that has been issued under 14 CFR 67, Medical Standards and Certification, or a military equivalent. 14 CFR 91.17, Alcohol or Drugs, applies to UA observers.
- **Pilot-in-Command (PIC) – Visual Flight Rules (VFR):**
 - The PIC is the person directly responsible for the operation of the UA. The responsibility and authority of the pilot in command as described by 14 CFR 91.3 (or military equivalent), applies to the UAS PIC.

- The PIC must pass the required knowledge test for a private pilot certificate, or military equivalent, as stated in 14 CFR 61.105, and must keep their aeronautical knowledge up to date.
- There is no intent to suggest that there is any requirement for the UAS PIC to be qualified as a crewmember of a manned aircraft.

Pilot Proficiency – VFR:

- Pilots will not act as a PIC unless they have had three qualified proficiency events within the preceding 90 days.
 - The term “qualified proficiency event” is a UAS-specific term necessary due to the diversity of UAS types and control systems.
 - A qualified proficiency event is an event requiring the pilot to exercise the training and skills unique to the UAS in which proficiency is maintained.
- Pilots flying UA on other than instrument flight plans must pass the required knowledge test for a private pilot certificate, or military equivalent, as stated in 14 CFR 61.105.

PIC Responsibilities:

- Pilots are responsible for a thorough preflight inspection of the UAS. Flight operations will not be undertaken unless the UAS is airworthy. The airworthiness provisions of 14 CFR 91.7, Civil Aircraft Airworthiness, or the military equivalent, apply.
- One PIC must be designated at all times and is responsible for the safety of the UA and persons and property along the UA flight path.
- The UAS pilot will be held accountable for controlling their aircraft to the same standards as the pilot of a manned aircraft. The provisions of 14 CFR 91.13, *Careless and Reckless Operation*, apply to UAS pilots.

Pilot/ATC Instructions: The PIC will maintain direct two-way communications with ATC and have the ability to maneuver the UA per their instructions as applicable.

SPECIAL PROVISIONS:

The FAA recognizes that, by nature, UAS have no on-board pilot to perform see-and-avoid responsibilities. Therefore, when operating outside of Restricted Airspace, special provisions must be made to ensure an equivalent level of safety exists for operations had a pilot been on board. Listed below are the special provisions that must be complied with. All personnel connected with this UAS operation shall comply with the contents of this authorization and its special provisions.

1. All operations shall be conducted in visual meteorological conditions (VMC) during daylight hours only and in compliance with Title 14 of the Code of Federal Regulations (CFR) section 91.155, *Basic VFR Weather Minimums*.

2. Visual observers must be within one nautical mile laterally and 3000 feet vertically to exercise see-and-avoid responsibilities required by Title 14 of the Code of Federal Regulations (CFR) section 91.113, *Right-of-Way Rules: Except Water Operations*. Pilot/observers must not operate the Aerostar at a distance beyond that at which see-and-avoid responsibilities can be exercised. The visual observers may be either ground based or in a chase aircraft. The observer(s) must keep the UAS in sight at all times.
3. Operations outside of restricted airspace may only be conducted during daylight hours.
4. The UAS transponder and position/navigation/anti-collision strobe lights shall be activated at all times during flight.
5. In the event of a lost link the:
 - Pilot will notify Albuquerque Air Route Traffic Control Center of the lost link condition and provide the following:
 - UA last known location
 - UA altitude
 - Direction of flight/heading
 - Fuel on board
 - the loss of link waypoint location, route to the waypoint, and holding airspace at the loss of link waypoint.
 - Pilots intentions
 - In the event of a loss link, the UAS operator will immediately notify ATC and will proceed to the preprogrammed lost link waypoint at the pre-programmed altitude and hold until link is reestablished or fuel is exhausted.
6. Operations to include lost link procedures will not be conducted over populated areas, heavily trafficked roads, or any other area where people gather in large numbers.
7. Due to the limitations of UAS, the following ATC procedures are not authorized:
 - Application of visual separation when the pilot of the UAS would be required to apply and maintain the visual separation
 - Visual sequencing of manned aircraft and UAS in the traffic pattern
 - Special VFR operations
8. Takeoffs and landings are only authorized from either Las Cruces airport (LRU) or the Playas airport (NM86).
9. The UA will not be flown into any military training route without coordination with the appropriate scheduling agency.
10. There will not be manned and unmanned traffic in an airport traffic pattern at the

same time.

11. A maximum of one UA will be flown at each operating location. When operating from Playas airport (NM86), coordination will be made with any other organization operating UA under a COA to ensure this mitigation is not overlooked.
12. Proponent is required to obtain permission from NM86 and LRU owner/operator prior to UA operations commencing.

NOTAM: A distance (D) Notice to Airman shall be issued when UA operations are being conducted. This requirement may be accomplished through your local base operations or NOTAM issuing authority. You may also complete this requirement by contacting a Flight Service Station at 1-877-4-US-NTMS (1-877-487-6867) not more than 72 hours in advance, but not less than 48 hours prior to the operation and provide:

- Name and Address of operator filing NOTAM request
- Location, Altitude or the operating Area
- Time and nature of the activity

NOTE FOR PROPONENTS FILING THEIR NOTAM WITH DoD ONLY: This requirement to file with the FSS is in addition to any local procedures/requirements for filing through DINS. The FAA Unmanned Aircraft Systems Office is working with the FSS to eliminate the requirement to file a NOTAM with both the FSS and DINS in the near future.

INCIDENT / ACCIDENT REPORTING: The following information is required to document unusual occurrences associated with UAS activities in the NAS.

- The proponent for the COA shall provide the following information to Donald.E.Grampp@faa.gov on a monthly/annual basis:
 - Number of flights conducted under this COA.
 - Pilot duty time per flight.
 - Unusual equipment malfunctions (hardware/software).
 - Deviations from ATC instructions.
 - Operational/coordination issues.
 - All periods of Loss of Communications.
- The following shall be submitted via email or phone (202-385-4542, (b) (6) (b) (6) to Donald.E.Grampp@faa.gov within 24 hours:
 - All accidents or incidents involving UAS activities
 - Deviations from the "Special Provisions" contained in the COA

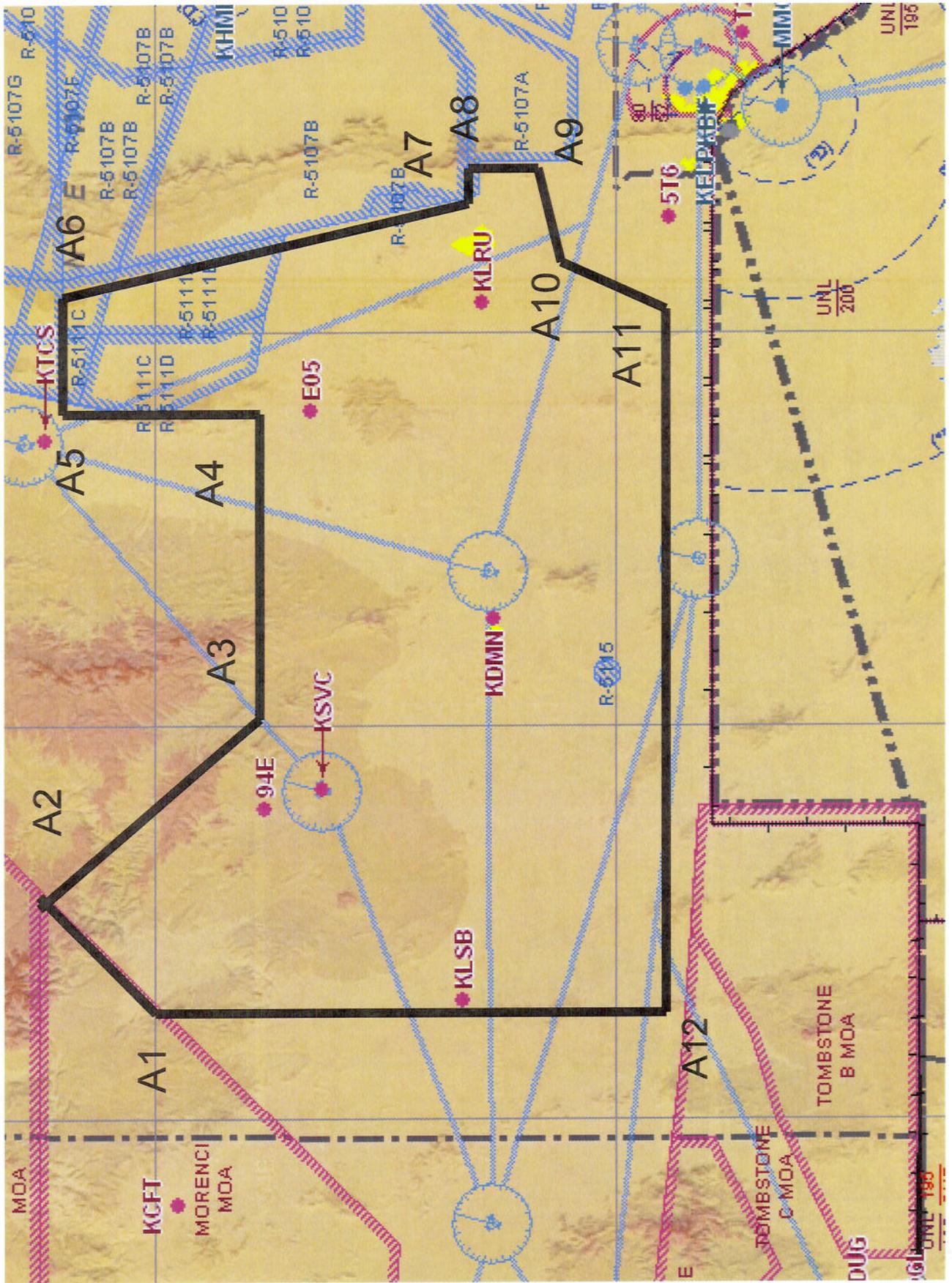
This COA does not, in itself, waive any Federal Aviation Regulation (FAR) nor any state law or local ordinance. Should the proposed operation conflict with any state law or

local ordinance, or require permission of local authorities or property owners, it is the responsibility of New Mexico State University – Physical Science Laboratory to resolve the matter. This COA does not authorize flight within Special Use Airspace without approval from the Using Agency. New Mexico State University – Physical Science Laboratory is hereby authorized to operate the Aerostar UAS in the operations area depicted in “Activity” above and attachment 1 below.

NMSU AeroStar UAS
2008-CSA-6-COA (Rev 1)
Flight Operations Area

ALPHA AIRSPACE

Attachment 1



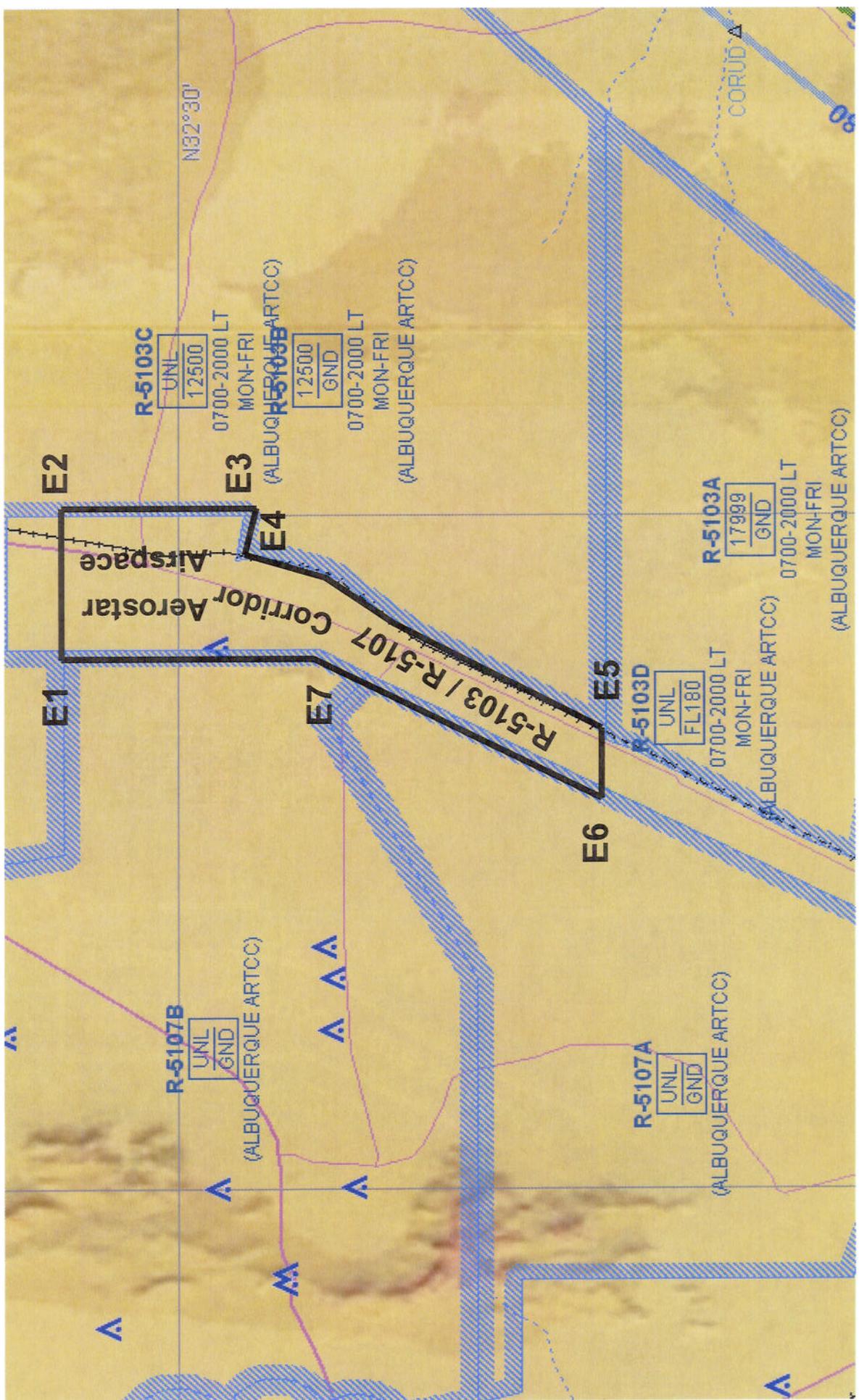
ALPHA AIRSPACE

Beginning at 33-00-00N / 108-42-00W (A1) to
33-15-00N / 108-24-32W (A2) to
32-43-00N / 108-00-00W (A3) to
32-43-00N / 107-13-00W (A4) to
33-13-00N / 107-13-00W (A5) to
33-13-00N / 106-52-02W (A6) to
32-19-30N / 106-39-32W (A7) to
32-18-00N / 106-34-02W (A8) to
32-12-00N / 106-34-00W (A9) to
32-04-00N / 106-48-00W (A10) to
31-51-00N / 106-55-00W (A11) to
31-51-00N / 108-42-00W (A12) to

point of beginning

Altitude – Surface to 17,500 MSL

AIRSPACE ECHO



AIRSPACE ECHO

Beginning at 32-36-00N / 106-06-02W (E1) to
32-36-00N / 106-00-02W (E2) to
32-27-40N / 106-00-02W (E3) to
32-28-00N / 106-02-02W (E4) to
32-15-00N / 106-10-02W (E5) to
32-15-00N / 106-12-00W (E6) to
32-24-48N / 106-09-02W (E7) to

point of beginning

Altitude – Surface to 17,500 MSL