

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION					
CERTIFICATE OF WAIVER OR AUTHORIZATION					
ISSUED TO University of Colorado-Boulder	Part 91				
ADDRESS 3775 Discovery Drive Boulder, CO 80309					
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 small Unmanned Aircraft System (sUAS) weighing less than 55 pounds and operating at speeds of less than 87 kts (100 mph) in Class G airspace at or below 400 feet Above Ground Level (AGL) for the purpose of public aircraft operations.					
LIST OF WAIVED REGULATIONS BY SECTION AND TITLE N/A					
STANDARD PROVISIONS					
<ol style="list-style-type: none">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 herein4. 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 A thru I, inclusive, are set forth on the reverse side hereof.					
This certificate is effective from _____ to _____ and is subject to cancellation at any time upon notice by the Administrator or his/her authorized representative.					
<p style="text-align: center;">BY DIRECTION OF THE ADMINISTRATOR</p> <table border="0" style="width: 100%;"><tr><td style="width: 50%; text-align: center;"><u>FAA Western Service Area</u> (Region)</td><td style="width: 50%; text-align: center;"><u>B. G. Chew</u> (Signature)</td></tr><tr><td style="text-align: center;">_____ (Date)</td><td style="text-align: center;"><u>Tactical Operations Manager</u> (Title)</td></tr></table>		<u>FAA Western Service Area</u> (Region)	<u>B. G. Chew</u> (Signature)	_____ (Date)	<u>Tactical Operations Manager</u> (Title)
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_____ (Date)	<u>Tactical Operations Manager</u> (Title)				

Purpose: To prescribe UAS operating requirements in the National Airspace System (NAS) for the purpose of Public Aircraft Operations. The holder of this COA will be referred herein as the “Proponent”.

Public Aircraft

1. A public aircraft operation is determined by statutes, 49 USC §40102(a)(41) and §40125.
2. All public aircraft flights conducted under a COA must comply with the terms of the statute.
3. All flights must be conducted per the declarations submitted in the application, and as specified in the following Standard/Special Provisions.
4. This COA provides an alternate means of complying with 14 CFR §91.113(b) for unmanned aircraft operations
5. All operations will be conducted in compliance with Title 14 CFR §91 and the conditions of the authorization issued herein. If the operator cannot adhere to any of these requirements a separate FAA Form 7711-2 Waiver application may be required.

SPECIAL PROVISIONS

A. General

1. All personnel connected with the UAS operation must read and comply with the contents of this authorization and its provisions.
2. A copy of the COA including the special limitations must be immediately available to all operational personnel at each operating location whenever UAS operations are conducted.
3. This authorization may be canceled at any time by the Administrator, the person authorized to grant the authorization, or the representative designated to monitor a specific operation. As a general rule, this authorization may be canceled when it is no longer required, there is an abuse of its provisions, or when unforeseen safety factors develop. Failure to comply with the authorization is cause for cancellation. The proponent will receive a written notice of cancellation.
4. During the time this COA is approved and active, a site safety evaluation/visit may be accomplished to ensure COA compliance, assess any adverse impact on ATC or airspace, and ensure this COA is not burdensome or ineffective. Deviations, accidents/incidents/mishaps, complaints, etc., will prompt a COA review or site visit to address the issue. Refusal to allow a site safety evaluation/visit may result in cancellation of the COA.

Note: This section does not pertain to agencies that have other existing agreements in place with the FAA.

5. Frequency spectrum approval is independent of the COA process and requires the proponent to obtain certification and frequency assignments (licenses) from the National Telecommunications and Information Administration (NTIA) (47 CFR Part 300) or Federal Communications Commission (47 CFR Part 2, Subpart J and 47 CFR Part 87, Subpart D) and frequency licenses (47 CFR Part 87) when applicable for the control link, ATC radios, transponders, detect and avoid systems, and navigation systems used to support this COA. Equipment licensed under 47 CFR Part 5 (Experimental) or 47 CFR Part 15 (Radio Frequency Devices) does not provide the protection necessary for NAS operations.

B. Operations.

1. The UA must be operated within visual line of sight (VLOS) of the Pilot in Command (PIC) and the person manipulating the flight controls at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses. Although the remote PIC and person manipulating the controls must maintain the capability to see the UA, using one or more visual observers (VO)'s allows the remote PIC and person manipulating the controls to conduct other mission-critical duties (such as checking displays) while still ensuring situational awareness of the UA.
2. Must yield right of way to other aircraft, manned or unmanned.
3. First-person view camera cannot satisfy "see-and-avoid" requirement but can be used as long as the visual requirement is satisfied in other ways.
4. Maximum altitude of 400 feet above ground level (AGL) or, if higher than 400 feet AGL, remain within 400 foot radius of a structures upper most limit. In all cases, the UAS must remain within Class G airspace.
5. Minimum visibility of 3 statute miles from control station.
6. No person may act as a remote pilot in command or VO for more than one unmanned aircraft at one time.
7. No operations from a moving vehicle or watercraft unless the operation is over a sparsely populated area and the PIC and VO are co-located.
8. Lost link must remain within visual line of sight of the PIC and VO.
9. The remote pilot in command may deviate from the requirements of this rule in response to an in-flight emergency.
10. Requests to operate in an area outside the approved operating area of this authorization should be limited to emergency/life threatening operations. Coordinate these flights through the Special Government Interest (SGI) process by calling the System Operations Support Center (SOSC) at (202) 267-8276, or email: 9-ATOR-HQ-SOSC@faa.gov.

C. Notice to Airmen (NOTAM).

1. A Distant (D) NOTAM must be issued prior to conducting UAS operations not more than 72 hours in advance, but not less than 24 hours for UAS operations prior to the operation for routine operations. This requirement may be accomplished:
 - a. Through the operator's local base operations or (D) NOTAM issuing authority, or
 - b. By contacting the NOTAM Flight Service Station at 1-877-4-US-NTMS (1-877-487- 6867). The issuing agency will require:
 - (1) Name and contact information of the pilot filing the (D) NOTAM request
 - (2) Location, altitude and operating area
 - (3) Time and nature of the activity.
2. The area of operation defined in the (D) NOTAM must only be for the actual area to be flown for each day defined by a point and the minimum radius required to conduct the operation.
3. Operator must cancel (D) NOTAMs when UAS operations are completed or will not be conducted.
4. For first responders only. Due to the immediacy of some emergency management operations, the (D) NOTAM notification requirement may be issued as soon as practical before flight and if the issuance of a (D) NOTAM may endanger the safety of persons on the ground, it may be excluded. If the (D) NOTAM is not issued, the proponent must be prepared to provide justification to the FAA upon request.

D. Reporting Requirements.

1. Documentation of all operations associated with UAS activities is required regardless of the airspace in which the UAS operates.
2. The Proponent must submit the number of flights on a monthly basis through the COA Application Processing System (CAPS).

E. sUAS Night Operations.

sUAS operations may be conducted at night, as defined in 14 CFR § 1.1, provided:

1. All operations under the approved COA must use one or more VOs;
2. Prior to conducting operations that are the subject of the COA, the remote PIC and VO must be trained to recognize and overcome visual illusions caused by darkness, and understand physiological conditions which may degrade night vision. This training must be documented and must be presented for inspection upon request from the Administrator or an authorized representative;
3. The sUAS must be equipped with lighted anti-collision lighting visible from a distance of no less than 3 statute miles. The intensity of the anti-collision lighting may be reduced if, because of operating conditions, it would be in the interest of safety to do so. Additionally, in order to comply with § 91.209, the aircraft must have position lighting that enables determination of location altitude, attitude, and direction of flight.

F. Minimum Safe Altitude Operations.

A waiver from the requirements of 14 CFR 91.119(b) and (c) is approved as follows:

1. The ground speed of the small UAS must not exceed 100 mph/87 knots.
2. Except for those operations where it is necessary to safeguard human life, no person may operate a small unmanned aircraft over a human being unless that human being is:
 - a. Directly participating in the operation of the small unmanned aircraft; or
 - b. Located under a covered structure or inside a stationary vehicle that can provide reasonable protection from a falling small unmanned aircraft

Note: People “directly participating in the operation of the small unmanned aircraft” may include qualified non-crewmembers, as defined in 49 USC 40125.

3. For those operations where it is necessary to operate over a human being in order to safeguard human life, the remote pilot in command must not operate any lower or in proximity to human beings necessary to accomplish the operation.

G. Special Use Airspace.

1. Coordination and de-confliction between Military Training Routes (MTR) and Special Use Airspace (SUA) is the operator’s responsibility. When identifying an operational area the operator must evaluate whether an MTR or SUA will be affected. In the event the UAS operational area overlaps an MTR or SUA, the operator will contact the scheduling agency as soon as practicable in advance to coordinate and de-conflict. Approval from the scheduling agency is required for regulatory SUA, but not for MTR’s and non-regulatory SUA. If no response to coordination efforts, the operator must exercise extreme caution and remain vigilant of all MTRs and/ or non-regulatory SUAs.
2. Scheduling agencies for MTRs are listed in the Area Planning AP/1B Military Planning Routes North and South America. If unable to gain access to AP/1B contact the FAA at email address mail to: 9-AJV-115-UASOrganization@faa.gov with the IR/VR routes affected and the FAA will provide the scheduling agency information. Scheduling agencies for SUAs are listed in the FAA JO 7400.10.

H. Flight Planning Requirements.

Operations must only be conducted beyond the following distances from the airport reference point (ARP) of a public use airport, heliport, gliderport, or water landing port listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications:

1. 5 nautical miles (NM) from an airport having an operational control tower, or
2. 3 NM from an airport having a published instrument flight procedure, but not having an operational control tower, or
3. 2 NM from an airport not having a published instrument flight procedure or an operational control tower, or
4. 2 NM from a heliport.

I. Emergency/Contingency Procedures.

1. Lost Link Procedures:

In the event of a lost link, the UAS pilot will comply with the following provisions:

- a. The UA lost link will be programmed to ensure that lost link flight does not fly over persons and the landing location is within the view of the PIC.
- b. Rally and home locations will be programmed to remain within the area defined in the NOTAM where flight operations are being conducted.
- c. Lost link procedures will not transit or orbit over populated areas, Victor airways, or busy roadways/interstate highways.
- d. Lost link procedures will be programmed to remain within the operations area and altitude, avoid unexpected turn-around and/or altitude changes, and will provide sufficient time to communicate with ATC if necessary.

2. Emergency/Fly-Away Procedures:

- a. In the event of an emergency, the PIC will immediately contact the ATC facility having jurisdiction for the airspace, state the nature of emergency and pilot intentions.
- b. In the event of a UA fly-away, advise ATC of the following:
 - (1) Direction of flight
 - (2) Last known altitude
 - (3) Maximum remaining flight time

AUTHORIZATION

This Certificate of Waiver or Authorization does not, in itself, waive any Title 14 Code of Federal Regulations not specifically stated, 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 the proponent to resolve the matter. This COA does not authorize flight within Temporary Flight Restrictions, Special Flight Rule Areas, regulatory Special Use Airspace or the Washington DC Federal Restricted Zone (FRZ) without pre-approval. The proponent is hereby authorized to operate the small Unmanned Aircraft System in the NAS within the areas defined in the Operations Authorized section of the cover page.