

Small Unmanned Aircraft System COA
Public Agency
2023-WSA-13879-COA

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<small>DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION (FAA)</small> CERTIFICATE OF WAIVER OR AUTHORIZATION (COA)	
<small>ISSUED TO</small> University of Colorado Boulder	Part 91
<small>ADDRESS</small> 4845 Pearl East Circle Boulder, CO 80309	
<p>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.</p>	
<small>OPERATIONS AUTHORIZED</small> Operation of small Unmanned Aircraft System(s) weighing less than 55 pounds and operating at speeds of less than 87 knots (100 miles per hour [mph]) in Class D and G airspace, at or below 400 feet Above Ground Level (AGL), in the Northwest Area, and 100 feet AGL in the Southeast Area, in the vicinity of Boulder, Colorado, under jurisdiction of Rocky Mountain Metro Airport Traffic Control Tower (BJC ATCT) and Denver Terminal Radar Approach Control (D01). See Attachment 1.	
<small>LIST OF WAIVED REGULATIONS BY SECTION AND TITLE</small> 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 FAA 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.	
<p>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.</p>	
SPECIAL PROVISIONS	
Special Provisions A through I are set forth on the reverse side hereof.	
<p>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> <p style="text-align: center; margin-top: 20px;">BY DIRECTION OF THE ADMINISTRATOR</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"><div style="width: 45%; text-align: center;"><p><u>FAA Western Service Area</u> (Region)</p> <p>_____</p><p>(Date)</p></div><div style="width: 45%; text-align: center;"><p><i>For</i> <u>Adam Vetter</u> (Signature)</p> <p><u>Tactical Operations Manager</u> (Title)</p></div></div>	

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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 U.S.C. § 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 Title 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, if 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 air traffic control (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. Radiofrequency spectrum authorization is independent of the COA process and requires the proponent to obtain Federal Communications Commission (FCC) equipment certification (47 CFR Part 2, Subpart J and 47 CFR Part 87, Subpart D) and frequency licenses (47 CFR Part 87) in the Aeronautical Radionavigation, Aeronautical Mobile (Route), or Aeronautical Mobile Services, as appropriate, for the control link, ATC radios, transponders, detect and avoid systems, and navigation systems used to support this COA. For systems operating exclusively below 400 feet, and within visual line of sight, the control link equipment may be licensed under 47 CFR Part 15 (Radio Frequency Devices).

Equipment licensed under 47 CFR Part 5 (Experimental) does not provide the protection necessary for NAS operations.

B. Operations.

1. The issuing of a NOTAM and the use of a Visual Observer (VO) are not required for small UAS operations under 14 CFR Part 91 that meet all the following criteria:
 - a. Weighs less than 55 pounds;
 - b. Have a maximum airspeed of 100 miles per hour (87 knots) or less;
 - c. Are operated in class G airspace at or below 400 feet above ground level, or at or below the UAS facility map altitudes; and
 - d. Remain within visual line of sight.
 - e. For those operations not meeting the above criteria, all VO and NOTAM provisions of this document apply.
2. The unmanned aircraft (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) 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.
3. Must yield right of way to other aircraft, manned or unmanned.
4. First-person view cameras cannot satisfy “see-and-avoid” requirements but can be used as long as the visual requirement is satisfied in other ways.
5. Must maintain a minimum visibility of three statute miles from control station.
6. No person may act as a remote PIC or VO for more than one UA 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 procedures must remain within VLOS of the PIC and VO.
9. The remote PIC 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 and/or 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 Air Missions (NOTAM).

1. A Distant (D) NOTAM must be issued, not less than 24-hours but not more than 72-hours, in advance of conducting routine UAS 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:

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- (1) Name and contact information of the pilot filing the (D) NOTAM request;
 - (2) Location, altitude, and operating area; and
 - (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.

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. Small UAS Night Operations. Small UAS operations may be conducted at night, as defined in Title 14 CFR § 1.1, provided the following:

1. All operations under the approved COA that do not meet the requirements of B.1. above, 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; and
3. The small UAS must be equipped with lighted anti-collision lighting visible from a distance of no less than three 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 Title 14 CFR § 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 Title 14 CFR § 91.119 (b) and (c) is approved as follows:

1. The ground speed of the small UAS must not exceed 87 knots (100 mph).
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 U.S.C. § 40125.

3. For those operations where it is necessary to operate over a human being in order to safeguard human life, the remote PIC 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 in advance and as soon as practicable to coordinate and de-conflict. Approval from the scheduling agency is required for regulatory SUA, but not for MTRs and non-regulatory SUA. If there is 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 the AP/1B, contact the FAA with the instrument routes/visual routes affected at the following email address: 9-AJV-115-UASOrganization@faa.gov. The FAA will provide the scheduling agency information. Scheduling agencies for SUAs are listed in the FAA Order JO 7400.10, *Special Use Airspace*.

H. Air Traffic Control (ATC) Requirements.

1. Coordination Requirements: The proponent can operate at or below altitudes specified in Attachment 1 without coordinating with ATC.
2. Communication Requirements: If an operation requires a NOTAM (see Provision B.1.), the PIC must be accessible via the phone number provided in NOTAM, or during initial coordination, for direct real time communication and coordination purposes for the duration of UAS operation.
3. Flight Planning Requirements:
 - a. The proponent is responsible for reviewing the most current Chart Supplement at https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/search/ for the intended airport of operation to determine operating hours and class of airspace.
 - b. The proponent is responsible for obtaining authorization from the appropriate authority for any operations that may result in launching and/or landing from lands or waters administered by a Federal, State, or public agency (National Park, State Park, Wilderness Area, and Wildlife Refuge, etc.).
 - c. UAS operation(s) are not approved unless the ceiling is reported at or above 2,800 feet with visibility of 3 statute miles or more.
4. Procedural Requirements:
 - a. ATC may delay, limit, prohibit, or terminate UAS operations when the safety of manned aircraft operations are a concern.
 - b. UAS operations must remain clear of airport traffic patterns and not cross over any runway or taxiway unless otherwise coordinated.

I. Lost Link/Emergency/Contingency Procedures.

1. Lost Link Procedures: ATC does not need to be notified provided the PIC complies with the following provisions:
 - a. The UAS must fly back to the home point and land.
 - b. Lost link procedures must be programmed to remain within the operations area / approved altitude and landing location is within the view of the PIC.
2. Loss of Sight: If an operation requires use of a VO (see Provision B.1.) and a VO loses sight of the UAS, the PIC must be notified immediately. If the UAS is visually reacquired promptly, the mission may continue. If not, the PIC must immediately terminate the operation and the UAS must return to land at home point.
3. Loss of Communication between the PIC and VO: If an operation requires use of a VO (see Provision B.1.) and communication between the PIC and VO are lost, the PIC must execute lost link procedures. If communications are reestablished, the mission may resume. If communication cannot be promptly re-established, the flight must be terminated and the UAS must return to land at home point.
4. Emergency/Fly-Away Procedures: In the event of an emergency/fly-away toward an area or airport where the PIC has determined the UAS may create a hazard to aviation, the PIC must immediately notify the appropriate ATC facility.
 - a. Facility Contact:
 - (1) BJC ATCT - 720-633-8610
 - (2) D01 - 303-342-1590 (Use Option 1)
 - b. The PIC must provide the following information:
 - (1) Nature of emergency.
 - (2) Last known UAS position, altitude, and direction of flight.
 - (3) Maximum remaining flight time.

AUTHORIZATION

This COA does not, in itself, waive any Title 14 CFR 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 SUA, or the Washington DC Federal Restricted Zone without pre-approval. The Proponent is hereby authorized to operate the small UAS in the NAS within the areas defined in the Operations Authorized section of the cover page.

