University of Wyoming

Unmanned Aircraft System Policy Manual

Contents

OVERVIEW

I. INTRODUCTION AND PURPOSE

University of Wyoming employees and students may use an unmanned aircraft system (UAS), more commonly known as a drone, in teaching and research. However, use of UASs for teaching or research requires authorization from the Federal Aviation Administration (FAA).

The University has obtained a Certificate of Authorization (COA) from the FAA to allow its employees and students to use certain UASs for teaching and research purposes. In accordance with the COA, this policy outlines the requirements that University employees and students must follow when using a UAS for University teaching or research purposes. For a list of UASs covered under the University's COA please see Appendix A. If you have questions regarding this manual, please contact the Associate General Counsel, Compliance at (307) 766-4123 or aguritza@uwyo.edu .

III. UNIVERSITY UAS MANAGER

The Associate Vice President for Research and Economic Development is the University's UAS Manager. The Manager is responsible for:

A. Approving the use of UASs by University employees or students for University teaching or research;

B. Maintaining a copy of this Manual; and

C. Serving as the University's primary point of contact with the FAA.

III. POLICY

No use of UAS may be undertaken by University employees or students, or by third parties (including, but not limited to, consultants or contractors) acting on behalf of the University, without prior approval from the University UAS Manager.

IV. PROCEDURES

If a University employee or student would like to use a UAS for University research or teaching, the individual must submit the University UAS Project Application Form (Appendix B) to the Vice President of Research and Economic Development for review and approval. Upon approval of the Application, that individual will be responsible for complying with all requirements outlined in this manual.

FLIGHT PERSONNEL

I. GENERAL

The term "Flight Personnel" includes pilots, visual observers, and any other personnel necessary for the safe conduct of flight operations.

II. PILOT

A. General. A UAS may only be operated by a pilot, known as the Pilot-in-Command ("PIC"), who meets the requirements outlined in this manual.

B. Qualifications

1. The PIC must hold one of the following pilot certificates:
    - **i.** Commercial;
    - **ii.** Private;
    - **iii.** Recreational; or
    - **iv.** Sport.
2. The PIC must also hold one of the following:
    - **i.** A current FAA airman medical certificate; or
    - **ii.** Valid U.S. driver's license.
3. The PIC must maintain an understanding of regulations applicable to the airspace where UAS operations will occur.

C. Duties and Responsibilities

1. The PIC has ultimate responsibility for the safe operation of the UAS.

2. The PIC must be designated before the flight and cannot be changed for the duration of the flight.

3. The PIC must read and be familiar with the contents of this Manual and the manufacturer's manual.

4. The PIC must have conducted a flight review in an aircraft in which the PIC is rated on his or her pilot certificate.

5. The UAS must be operated within visual line of sight (VLOS) of the Pilot at all times. This requires the Pilot to be able to use human vision unaided by any device other than corrective lenses, as specified on the Pilot's FAA-issued airman medical certificate or U.S. driver's license.

6. The PIC must maintain and inspect the UAS to ensure that it is in a condition for safe operation.

7. The PIC must have a copy of the COA and all operating documents during all UAS flight operations.

8. The PIC is responsible for ensuring visual observer(s) are:

    i. Familiar with all requirements related to UAS operations, and
    ii. Able to provide the PIC with the UAS's flight path and proximity to all aviation activities and other hazards (e.g., terrain, weather, structures).

III. VISUAL OBSERVER

A. General All UAS operations must include at least one Visual Observer ("Observer"). The Observer and PIC cannot be the same person.

B. Qualifications

1. Observers must have sufficient knowledge of the airspace to permit them to adequately assess the risks posed by other aircraft or objects.

2. Observers must have knowledge of basic Visual Flight Rules (VFR) weather minimums.

3. Observers must maintain an understanding of all operational aspects of the UAS.

4. Observers must be familiar with the requirements of the COA and this Manual.

C. Duties and Responsibilities

1. The Observer plays a critical role in assisting the PIC in maintaining situational awareness for the safe operation of the UAS.

2. The Observer must maintain visual contact with the UAS and must maintain scan the area around the UAS for potential hazards to the safety of the flight.

3. Observers must maintain verbal contact with the PIC at all times and be able to advise the PIC of any hazards that arise during flight.

PRE-FLIGHT REQUIREMENTS

I. UAS IDENTIFICATION AND REGISTRATION

A. All UAS must be registered as outlined below, and have identification (the N-Number required by the registration) as large as practicable on the UAS. To register an UAS, you must submit an AC Form 8050-1 and evidence of ownership to the Aircraft Registration Branch (AFS-750). For more information, please see: https://registermyuas.faa.gov/

II. FLIGHT PLANNING

A. Notice to Airman (NOTAM)

1. A distant (D) NOTAM must be issued by the FAA when UASs are being used in the airspace. A NOTAM must be obtained at least 24 hours prior to the flight, but may not be obtained more than 72 hours in advance of the flight.

2. A NOTAM can be obtained by contacting the local base operations or by contacting the NOTAM Flight Service Station at 1-877-4-US-NTMS (1-877-487-6867). The issuing agency will require the following information:

- **i.** Name and address of the pilot filing the NOTAM request
- **ii.** Location, altitude, or operating area
- **iii.** Time and nature of the activity.
- **iv.** Number of UAS being used.

B. Military Training Routes.

1. In the event the UAS operational area overlaps any military training route, the operator must contact the scheduling agency 24 hours in advance to coordinate.

2. Scheduling agencies 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:9-AJV-115-UASOrganization@faa.gov with the IR/VR routes affected and the FAA will provide the information.

C. Airports. Unless a letter of agreement with the particular airport is obtained, a UAS may not be operated within 5 nautical miles of an airport reference point (ARP) as denoted in the FAA Airport/Facility Directory or for airports without an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart. The letter of agreement with the airport management must be made available to the University or any law enforcement official upon request.

FLIGHT OPERATION REQUIREMENTS

I. TRAINING FLIGHT OPERATIONS

A. Training flights may be performed for the sole purpose of either gaining experience flying/observing UAS.

B. Training flights may only be conducted during designated training sessions, as approved on the University UAS Project Application Form (Appendix B).

C. A pilot may operate a UAS under this Section for limited training purposes even if he or she does not meet the requirements for acting as a PIC.

D. All training flights must be terminated immediately if any person or vehicle not involved in the training approaches within 500 feet (calculated as actual distance) of the UAS.

E. In all other respects, training flights must be conducted in accordance with the requirements of this Manual.

II. ALL OTHER FLIGHT OPERATIONS

A. Separation and Distance.

1. UASs must be operated during daytime hours.

2. All operations shall be conducted over property with permission from the property owner or authorized representative. Permission from property owner or authorized representative must be obtained for each flight to be conducted.

3. UASs may not be operated from any moving device or vehicle.

4. UASs must remain clear and give way to all manned aviation operations at all times.

5. Unless an exception is granted (See Section II. Flight Planning. C), UAS must be operated at least:

i. 5 nautical miles (NM) from an airport having an operational control tower;

ii. 3 NM from an airport having a published instrument flight procedure, but not having an operational control tower;

iii. 2 NM from an airport not having a published instrument flight procedure or an operational control tower; and

iv. 2 NM from a heliport, glider port or seaplane base

6. UAS may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud.

7. Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:

i. Barriers or structures are present that sufficiently protect nonparticipating persons from debris in the event of an accident and/or;

ii. Where the land owner/controller has granted permission and the PIC has made a safety assessment of the risk of operating closer to those objects and;

iii. Operations near the PIC, Observer, and other participating persons do not present an undue hazard to the PIC, Observer, or other persons.

8. UAS may not be operated in Prohibited Areas, Special Flight Rule Areas or, the Washington National Capital Region Flight Restricted Zone. Additionally, aircraft operators should beware of and avoid other areas identified in Notices to Airmen (NOTAMS) which restricts operations in proximity to Power Plants, Electric Substations, Dams, Wind Farms, Oil Refineries, Industrial Complexes, National Parks, The Disney Resorts, Stadiums, Emergency Services, the Washington DC Metro Flight Restricted Zone, Military or other Federal Facilities. Prohibited Areas and Special Flight Rule Areas are available at http://www.faa.gov/air_traffic/flight_info/aeronav/ .

9. If, at any time the PIC loses VLOS of the UAS, the flight must be terminated.

B. Flight Operations.

1. On the day of the flight prior to the start of UAS operations, the PIC must brief all Flight Personnel on the goals, objectives and key safety considerations of the planned UAS operation.

2. All flight operations must be conducted in accordance with the applicable manufacturer's manual.

3. All Flight Personnel must remain at their designated station during takeoff, landing, recovery, and other critical phases of flight.

4. Prior to each flight the PIC must inspect the UAS to ensure safe operation. If provided, the PIC shall use the manufacturer's preflight checklist for inspecting the UAS. If a checklist is not provided, the PIC must use the applicable parts of the University's Flight Operations Procedure Checklist (Appendix C). If the inspection reveals a condition that affects the safe operation of the UAS, the UAS is prohibited from operating until the necessary maintenance has been performed and the UAS can be operated safely.

5. UASs may not be used for the purpose of closed-set motion picture and television filming.

6. UASs may not be operated at a speed exceeding 87 knots (100 miles per hour) or the maximum operating airspeed recommended by the UAS manufacturer, whichever is less. Either groundspeed or calibrated airspeed may be used.

7. UASs must be operated at an altitude of no more than 400 feet above ground level (AGL).

8. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UAS to operate for at least five minutes or the amount of time listed in the manufacturing documents, whichever is greater.

9. If a UAS loses communications or loses its GPS signal, the UAS must return to a pre-determined location within the controlled-access property.

10. For tethered UAS operations, the tether line must have colored pennants or streamers attached at not more than 50 foot intervals beginning at 150 feet above the surface of the earth and visible from at least one mile. This requirement is not applicable when operating exclusively below the top of and within 250 feet of any structure, so long as the UAS operation does not obscure the lighting of the structure.

C. Documentation

1. All necessary documentation must be kept with the PIC during Flight Operations, including:
    i. Manufacturer's manuals;
    ii. This Manual;
    iii. UAS Registration;
    iv. Copy of the COA (Appendix H); and
    v. The Approved Project Application Packet.

POST-FLIGHT REQUIREMENTS

I. FLIGHT SUMMARY

A member of the Flight Personnel shall complete a post-flight summary using the Post Flight Summary Form (Appendix D). The Post Flight Summary Form must be submitted to the UAS Manager within five (5) business days following the operation of the UAS.

II. LOST LINKS, SYSTEM FAILURES, AND EMERGENCIES

A. In the event a lost-link is encountered during the UAS operation, the PIC shall document the event in the Data Link Discrepancy Log (Appendix E).

B. The PIC shall complete the Incident Report Form (Appendix F) documenting any safety related incidents, including any mechanical irregularities or malfunctions encountered during the flight operation. The University shall document any such deviations.

C. The PIC shall report any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area outlined in this manual to the University UAS Manager on the Incident Report Form (Appendix F) as soon as possible after the incident occurs. The University is required to report this information to the FAA's UAS Integration Office (AFS-80) and the National Transportation Safety Board (NTSB) within 24 hours.

D. In an emergency situation involving the safety of persons or property, which requires immediate decisions and actions, the PIC or any other appropriate Flight Personnel member may take action that is considered necessary under the circumstances to ensure safety. Flight personnel may deviate from prescribed operations procedures, to the extent necessary to address the emergency. Flight Personnel shall keep the appropriate ATC facilities fully informed when an in-flight UAS emergency could potentially impact operations of aircraft in navigable airspace.

UAS MAINTENANCE

I. MAINTENANCE REQUIREMENTS

A. The operator of the UAS must follow the manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components. Each UAS must comply with all applicable manufacturer safety bulletins.

B. The name of the maintenance technician performing the work must be listed on all UAS maintenance documents. The technician must be familiar with all aspects of the UAS' operations and be able to effectively troubleshoot and solve issues related to all flight components of the UAS.

C. UASs that have undergone maintenance or alteration that affect the UAS operation or flight characteristics, e.g., replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations. These flights must comply with all the requirements of Section II. All Other Flight Operations.

II. MAINTENANCE DOCUMENTATION

All maintenance performed on a UAS shall be documented and recorded in a Maintenance Log (Appendix G), including any malfunctions encountered, parts removed, parts replaced, and whether the aircraft is airworthy after any maintenance procedure.

REPORTING AND RECORD RETENTION

I. MONTHLY REPORTS

The University UAS Manager is required to file a monthly report with the FAA of all UAS use. The University submits this report on the last day of every month. This reports includes the information collected from the forms outlined in this manual.

II. RECORD RETENTION

UAS applicants are required to keep all records related to this manual, including but not limited to, application documents, data discrepancy logs, incident reports, and maintenance logs for at least two years after the project approval date.

APPENDIX A-LIST OF UASs

The University's COA covers the following types of UASs when weighing less than 55 pounds including payload:

1. DJI Phantom 1
2. DJI Phantom 2 Vision+
3. 3D Robotics X8,
4. 3D Robotics X8+, and
5. 3D Robotics Iris+.

If a University employee or student would like to use a different type of UAS, the University will need to obtain authorization from the FAA. Please contact the research office at (307) 766-5320 to discuss obtaining this authorization.

APPENDIX B- UAS PROJECT APPLICATION FORM

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UAS Project Application Number
No:_____
(Internal Purposes Only)

University of Wyoming
Unmanned Aircraft Systems (UAS) Project Application Form

Instructions: Answer each of the following questions. Incomplete applications will not be considered for approval. Once the application is complete please submit the application to the Associate Vice President for Research and Economic Development at: dyates4@uwyo.edu .

Submission type: ☐ New Project ☐ Project Amendment Today's Date: _____

SECTION A: Administrative Information

A1. Applicant Name:_____

A2. Department:_____

A3. Phone Number:_____ **A4.** Email Address:_____

A5. Title of Project: _____

A6. Status of Funding: ☐ Pending ☐ Established ☐ Unfunded

A7. If funded, funding Source/Sponsor:_____

A8. Complete the table below for each member of the flight personnel crew (See Page 3 of the University UAS Policy Manual). **Note:**

- **Pilot-in-Command:** A UAS may only be operated by a pilot, known as the Pilot-in-Command ("PIC"). The PIC must, (1) hold a pilot certificate, (2) hold a FAA airman medical certificate or valid U.S. driver's license, and (3) must maintain an understanding of regulations applicable to the airspace where the UAS will be operated.
- **Visual Observer:** A visual observer (VO) is a person who assists the operator to see and avoid other air traffic or objects. At a minimum, VOs must (1) have sufficient knowledge of the airspace to permit them to adequately assess risks, (2) have knowledge of basic VFR weather minimums, (3) maintain a thorough understanding of all operational aspects of the UAS, and (4) be familiar with the requirements of the COA and the University UAS Policy Manual.
- **Other Personnel:** Any other personnel include any personnel that will be used for the safe conduct of flight operations.

Full Name	Crew Member (see above)	Description of Training/Qualifications	Dates of any applicable trainings

SECTION B: Project Summary

B1. Provide a brief description of the nature and goals of the work to be undertaken and need for unmanned aircraft system:

_____
_____
_____
_____
_____
_____

B2. Identify the unmanned aircraft type(s) and model(s):

- ☐ DJI Phantom 1
- ☐ DJI Phantom 2 Vision+
- ☐ 3D Robotics X8,
- ☐ 3D Robotics X8+
- ☐ 3D Robotics Iris+

B3. Describe the control that will be used to make sure the UAS is operated safely:

_____
_____
_____
_____
_____
_____

B4. Describe the communications systems for each UAS:

_____
_____
_____
_____
_____

B5. Anticipated start date: _____ Anticipated end date: _____

NOTE: Approval for any UAS may not exceed one year, but may be renewed.

B6. Describe the geographical area where the UAS will be used: (Consider attaching a map print out)

_____
_____
_____
_____

B7. Describe the plan for communication between the Operator and Visual Observer(s):

_____
_____
_____
_____

B8. Identify all congested areas within the proposed geographical area of UAS use:

_____
_____
_____
_____

B9. Identify any threatened or endangered species which may be disturbed or harmed by the proposed operation:

_____
_____
_____
_____

B10. Identify any areas subject to a Temporary Flight Restriction (TFR) issued by the FAA:

_____
_____
_____
_____

B11. Identify any airports within the proposed area of operation (or indicate that you have attached a map with this information):

_____
_____
_____
_____

SECTION C: Certification of UAS Applicant

I certify I will operate the UAS, or monitor the operations of the UAS in accordance with all applicable laws, the University's Certificate of Authorization, and the University UAS Policy Manual. I agree that I will immediately report any accident or damage related to operation of the UAS to the Associate Vice President for Research and Economic Development.

Signature: _____ **Date: _____**

APPENDIX C-FLIGHT OPERATIONS PROCEDURES CHECKLIST

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University of Wyoming UAS
Flight Operations Procedures Checklist

Pre-Flight Checklist — Completed

1. *Equipment Check*

- **a.** UAS is free of visible defects. ☐
- **b.** All propellers in good condition are free of cracks, holes, dings, or other defects. ☐
- **c.** All propellers are firmly mounted and installed correctly. ☐
- **d.** All screws are tightened securely. ☐
- **e.** The landing feet are firmly attached. ☐
- **f.** All antennas are firmly attached. ☐
- **g.** All batteries are fully charged ☐

2. *Weather check*

- **a.** Wind speed within the operational limits. ☐
- **b.** Operation is clear of any rain, fog, thunder lighting, or other weather phenomena that would place the operation at risk. ☐
- **c.** Local weather report reviewed. ☐

3. *Site Set Up*

- **a.** Check NOTAMS for Temporary Flight Restrictions. ☐
- **b.** FailSafe point established ☐
- **c.** PIC and Observer review roles, responsibilities, and communication procedures. ☐
- **d.** Establish the location of the PIC and Observer. ☐
- **e.** Identify the Launch and Recovery Zone and ensure it is, cleared free of obstacles, and marked for safety. ☐

Launch Checklist — Completed

1. Ensure that the UAS is in the Failsafe geographic position. ☐
2. UAS positioned safely per University of Wyoming UAS Policy manual and applicable UAS manual. ☐
3. UAS prepared for launch. ☐
4. Visual Observer prepared. ☐
5. Surrounding area and airspace clear. ☐
6. Initiate Launch sequence. ☐

Landing Checklist — Completed

1. UAS geographically positioned for landing. ☐
2. Complete landing Sequence ☐

Shut Down Checklist — Completed

1. Unplug and remove battery from UAS. ☐
2. Fold all antennas on UAS. ☐
3. Complete Post Flight documentation. ☐

APPENDIX D- POST FLIGHT SUMMARY FORM

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UAS Project Application Number No:_____

(Internal Purposes Only)

University of Wyoming
Unmanned aircraft systems (UAS)
Post Flight Summary Reporting Form

Instructions: Answer each of the following questions. Once the form is complete, please submit the form to the Associate Vice President for Research and Economic Development at: dyates4@uwyo.edu . **Note:** the form must be completed and submitted within five (5) business days following the operation of the UAS.

Today's Date: _____

SECTION A: Administrative Information

A1. Name:_____

A2. Department:_____

A3. Phone Number:_____ **A4.** Email Address:_____

A5. Title of Project: _____

SECTION B: Project Summary

B1. Identify the UAS type(s) and model(s) that were used:

- ☐ DJI Phantom 1
- ☐ DJI Phantom 2 Vision+
- ☐ 3D Robotics X8,
- ☐ 3D Robotics X8+
- ☐ 3D Robotics Iris+

B2. List the operating locations (include city name and latitude/longitude):

_____
_____
_____
_____

B3. List the number of flights (per location per UAS):

_____
_____
_____
_____

B4. List the total number of UAS operational hours:

_____
_____
_____
_____

B5. Was there any take-off and landing damage during the operation of the UAS(s) ? If the answer to this question is yes, please attach a copy of the applicable maintenance log.

☐Yes ☐No

B6. Were there any lost link events during the flight? If the answer to this question is yes, please attach a copy of the applicable data discrepancy log.

☐Yes ☐No

B7. Were there any equipment malfunctions during the operation of the UAS(s)? Equipment malfunctions include malfunctions related to onboard flight control systems, navigations systems, power failure during flight, fuel system failure, electrical system failure, and control station failure. If the answer to this question is yes, please attach a copy of the applicable maintenance log.

☐Yes ☐No

SECTION C: Certification of UAS Applicant

I hereby certify that the above statements are true and correct to the best of my knowledge.

Signature: _____ **Date: _____**

APPENDIX E- DATA LINK DISCREPANCY LOG

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UNIVERSITY OF WYOMING DATA LINK DISCREPANCY LOG

Date	Interference	Loss of Link	Other (provide description)	Cause for data link issue	Total System Time

APPENDIX F-INCIDENT REPORT FORM

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UAS Project Application Number No:_____

(Internal Purposes Only)

University of Wyoming
Unmanned Aircraft Systems (UAS)
Incident Reporting Form

Instructions: Answer each of the following questions. Once the form is complete, please submit the form to the Associate Vice President for Research and Economic Development at: dyates4@uwyo.edu . **Note:** the form must be completed and submitted _____ business days following the incident.

Today's Date: _____

SECTION A: Administrative Information

A1. Name:_____

A2. Department:_____

A3. Phone Number:_____ **A4.** Email Address:_____

A5. Title of Project: _____

SECTION B: Description of the Event

B1. Identify the UAS type(s) and model(s) that were used:

- ☐ DJI Phantom 1
- ☐ DJI Phantom 2 Vision+
- ☐ 3D Robotics X8,
- ☐ 3D Robotics X8+
- ☐ 3D Robotics Iris+

B2. List the operating locations (include city name and latitude/longitude):

_____
_____
_____
_____

B3. Describe the event:

_____
_____
_____
_____

B4. Was there any property damage? If the answer to this question is yes, please describe.

_____
_____
_____
_____

B5. Was there any damage to the UAS? If the answer to this question is yes, please describe.

_____
_____
_____
_____

Please attach all applicable data discrepancy and maintenance logs

SECTION C: Certification of UAS Applicant

I hereby certify that the above statements are true and correct to the best of my knowledge.

Signature: _____ **Date: _____**

APPENDIX G- MAINTENANCE LOG

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UNIVERSITY OF WYOMING MAINTENANCE LOG								
Date	Check Box if Component Failed	Make, Model, Serial/N-Number of UAS	Removed (old) Part Number or Serial Number	Installed (new) Part Number or Serial Number	Description of Work	Total Time	Status of UAS	Tech Name
					Total System Time			

APPENDIX H- UNIVERSITY OF WYOMING'S CERTIFICATE OF AUTHORIZATION

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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

CERTIFICATE OF WAIVER OR AUTHORIZATION

ISSUED TO
Any Operator with a valid Section 333 Grant of Exemption

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 Unmanned Aircraft Systems in accordance with the operators' Section 333 Grant of Exemption at or below 200 feet Above Ground Level (AGL) in the National Airspace System (NAS).

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 has the same effective dates as the Grant of Exemption and is subject to cancellation at any time upon notice by the Administrator or his/her authorized representative.

BY DIRECTION OF THE ADMINISTRATOR

/S/

FAA Headquarters, AJV-115
(Region)

Jacqueline R. Jackson
(Signature)

Manager, UAS Tactical Operations Section
(Title)

This COA terminates two years from the date of a valid Section 333 Grant of Exemption, unless sooner superseded, rescinded, or cancelled.

FAA Form 7711-1 (7-74)

STANDARD PROVISIONS

A. **General.**

1. The approval of this COA is effective only with an approved Section 333 FAA Grant of Exemption.

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 being 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 operator will receive written notice of cancellation.

B. **Safety of Flight.**

1. The operator or pilot in command (PIC) is responsible for halting or canceling activity in the COA area if, at any time, the safety of persons or property on the ground or in the air is in jeopardy, or if there is a failure to comply with the terms or conditions of this authorization.

See-and-Avoid

Unmanned aircraft have no on-board pilot to perform see-and-avoid responsibilities; therefore, when operating outside of active restricted and warning areas approved for aviation activities, provisions must be made to ensure an equivalent level of safety exists for unmanned operations consistent with 14 CFR Part 91 §91.111, §91.113 and §91.115.

a. The pilot in command (PIC) is responsible:

- To remain clear and give way to all manned aviation operations and activities at all times,
- For the safety of persons or property on the surface with respect to the UAS, and
- For compliance with CFR Parts 91.111, 91.113 and 91.115

b. UAS pilots will ensure there is a safe operating distance between aviation activities and unmanned aircraft (UA) at all times.

c. Visual observers must be used at all times and maintain instantaneous communication with the PIC.

d. The PIC is responsible to ensure visual observer(s) are:

- Able to see the UA and the surrounding airspace throughout the entire flight, and
- Able to provide the PIC with the UA's flight path, and proximity to all aviation activities and other hazards (e.g., terrain, weather, structures) sufficiently for the PIC to exercise effective control of the UA to prevent the UA from creating a collision hazard.

e. Visual observer(s) must be able to communicate clearly to the pilot any instructions required to remain clear of conflicting traffic.

2. Pilots are reminded to follow all federal regulations e.g. remain clear of all Temporary Flight Restrictions, as well as following the exemption granted for their operation.

3. The operator or delegated representative must not operate in Prohibited Areas, Special Flight Rule Areas or, the Washington National Capital Region Flight Restricted Zone. Such areas are depicted on charts available at http://www.faa.gov/air_traffic/flight_info/aeronav/. Additionally, aircraft operators should beware of and avoid other areas identified in Notices to Airmen (NOTAMS) which restricts operations in proximity to Power Plants, Electric Substations, Dams, Wind Farms, Oil Refineries, Industrial Complexes, National Parks, The Disney Resorts, Stadiums, Emergency Services, the Washington DC Metro Flight Restricted Zone, Military or other Federal Facilities.

4. All aircraft operated in accordance with this Certificate of Waiver/Authorization must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N-Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be) as large as practicable.

C. **Reporting Requirements**

1. Documentation of all operations associated with UAS activities is required regardless of the airspace in which the UAS operates. NOTE: Negative (zero flights) reports are required.

2. The operator must submit the following information through mailto:9-AJV-115-UASOrganization@faa.gov on a monthly basis:
   a. Name of Operator, Exemption number and Aircraft registration number
   b. UAS type and model
   c. All operating locations, to include location city/name and latitude/longitude
   d. Number of flights (per location, per aircraft)
   e. Total aircraft operational hours
   f. Takeoff or Landing damage

g. Equipment malfunctions. Reportable malfunctions include, but are not limited to the following:

(1) On-board flight control system

(2) Navigation system

(3) Powerplant failure in flight

(4) Fuel system failure

(5) Electrical system failure

(6) Control station failure

3. The number and duration of lost link events (control, performance and health monitoring, or communications) per UA per flight.

D. **Notice to Airmen (NOTAM).**

A distant (D) NOTAM must be issued when unmanned aircraft operations are being conducted. This requirement may be accomplished:

a. Through the operator's local base operations or NOTAM issuing authority, or

b. By contacting the NOTAM Flight Service Station at 1-877-4-US-NTMS (1-877-487-6867) not more than 72 hours in advance, but not less than 24 hours prior to the operation, unless otherwise authorized as a special provision. The issuing agency will require the:

(1) Name and address of the pilot filing the NOTAM request

(2) Location, altitude, or operating area

(3) Time and nature of the activity.

(4) Number of UAS flying in the operating area.

AIR TRAFFIC CONTROL SPECIAL PROVISIONS

A. **Coordination Requirements.**

1. Operators and UAS equipment must meet the requirements (communication, equipment and clearance) of the class of airspace they will operate in.

2. Operator filing and the issuance of required distance (D) NOTAM, will serve as advance ATC facility notification of UAS operations in an area.

3. Operator must cancel NOTAMs when UAS operations are completed or will not be conducted.

4. Coordination and deconfliction between Military Training Routes (MTRs) is the operator's responsibility. When identifying an operational area the operator must

evaluate whether an MTR will be affected. In the event the UAS operational area overlaps (5 miles either side of centerline) an MTR, the operator will contact the scheduling agency 24 hours in advance to coordinate and deconflict. Approval from the scheduling agency is not required. Scheduling agencies 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 mailto:9-AJV-115-UASOrganization@faa.gov with the IR/VR routes affected and the FAA will provide the scheduling agency information. If prior coordination and deconfliction does not take place 24 hours in advance, the operator must remain clear of all MTRs.

B. **Communication Requirements.**

1. When operating in the vicinity of an airport without an operating control tower, announce your operations in accordance with the FAA Aeronautical Information Manual (AIM) 4-1-9 Traffic Advisory Practices at Airports without Operating Control Towers.

C. **Flight Planning Requirements.**

Note: For all UAS requests not covered by the conditions listed below, the exemption holder may apply for a new Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA) at https://oeaaa.faa.gov/oeaaa/external/uas/portal.jsp

This COA will allow small UAS (55 pounds or less) operations during daytime VFR conditions under the following conditions and limitations:

(1) At or below 200 feet AGL; and

(2) Beyond the following distances from the airport reference point (ARP) of a public use airport, heliport, gliderport, seaplane base and military airports listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications.

a) 5 nautical miles (NM) from an airport having an operational control tower; or

b) 3 NM from an airport having a published instrument flight procedure, but not having an operational control tower; or

c) 2 NM from an airport not having a published instrument flight procedure or an operational control tower; or

d) 2 NM from a heliport, gliderport or seaplane base

D. **Emergency/Contingency Procedures.**

1. Lost Link/Lost Communications Procedures:

- If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property and land.

- The PIC must abort the flight in the event of unpredicted obstacles or emergencies.

2. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries defined in this COA must be reported to the FAA via email at mailto:9-AJV-115-UASOrganization@faa.gov within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: **www.ntsb.gov**

AUTHORIZATION

This Certificate of Waiver or Authorization does not, in itself, waive any Title 14 Code of Federal Regulations, 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 operator to resolve the matter. This COA does not authorize flight within Special Use airspace without approval from the scheduling agency. The operator is hereby authorized to operate the small Unmanned Aircraft System in the National Airspace System.