

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
CERTIFICATE OF WAIVER

ISSUED TO

Keith Howard
Responsible Person: Keith Howard
Waiver Number: 107W-2023-01196

ADDRESS—

221 Crosswinds Ct
Waterloo, IL 62298

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 provisions contained in this certificate.

OPERATIONS AUTHORIZED

Operation from a moving land borne vehicle over other than sparsely populated areas. Operation not for transportation of property for compensation or hire; operations under this Waiver are to be conducted in Class G airspace only unless specific airspace authorization or Waiver is received from the FAA in accordance with § 107.41; Small unmanned aircraft system (sUAS) operations beyond the visual line of sight of the remote pilot in command (PIC); Operating Limitations for Small Unmanned Aircraft — Cloud Clearance.

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

14 CFR §§ 107.25—Operation from a moving vehicle or aircraft,
107.31—Visual line of sight aircraft operation, and
107.51(d)—Operating limitations for small unmanned aircraft - Cloud Clearance

STANDARD PROVISIONS

1. A copy of the application made for this certificate shall be attached to and become a part hereof.
2. This certificate shall be presented for inspection upon the request of any authorized representative of the Administrator 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 Nos. 1 to 48, inclusive, are set forth on the attached pages.

This Certificate of Waiver is effective from August 7, 2023, to August 31, 2027, and is subject to cancellation at any time upon notice by the Administrator or an authorized representative.

BY DIRECTION OF THE ADMINISTRATOR

General Aviation and Commercial Division, AFS-800

SPECIAL PROVISIONS ISSUED TO**Keith Howard****General.**

The FAA's Flight Standards Service has reviewed your application to ensure compliance with the requirements of 14 CFR § 107.200 and § 107.205. Pursuant to these authorities, the Administrator finds that the proposed small unmanned aircraft (sUA) operation can be conducted safely under the provisions of this Certificate of Waiver (Waiver) as listed below because you have established adequate mitigations for risks involved with operating your sUA in the manner you described. Adherence to the provisions of this Waiver establishes the required level of safety within the national airspace system.

The Administrator may cancel this Waiver at any time. As a general rule, this Waiver 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 any provision listed below is a violation of the terms of this Waiver and will serve as justification for cancellation.

List of Regulations Waived by Section and Title. The following regulations are waived:

14 CFR § 107.25, Operation from a moving vehicle or aircraft, is waived to allow sUA operations from a moving vehicle not meeting the requirements of § 107.25;

14 CFR § 107.31, Visual line of sight aircraft operation, is waived to allow operation of the small unmanned aircraft (sUA) beyond the direct visual line of sight of the remote pilot in command (PIC);

14 CFR § 107.51(d), Operating limitations for small unmanned aircraft - Cloud Clearance, is waived to allow sUA operations not meeting the cloud clearance requirements of § 107.51(d).

No part of this waiver will function as an airspace authorization under 14 CFR § 107.41. The FAA's Air Traffic Organization responds directly to requests for such authorizations.

Common Special Provisions. The Responsible Person is directly responsible for safety of operations conducted under this Waiver and will ensure the Remote Pilot in Command (remote PIC), manipulator of the controls, and visual observer(s) (VO)¹ comply with all provisions of this Waiver.

1. The Responsible Person listed on the Waiver is responsible to the FAA for the safe conduct of the operations. Prior to conducting operations that are the subject of this Waiver, the Responsible Person:
 - a. Must ensure the remote PIC, manipulators of the controls, and VO(s) are informed of the terms and provisions of this Waiver and strictly observe the terms and provisions herein;
 - b. Must ensure the remote PIC, manipulators of the controls, and VO(s) are informed and familiar with part 107 regulations; and
 - c. Evidence of the above (a and b) must be documented and must be presented for inspection upon request from the Administrator or an authorized representative;

¹ Title 14 CFR § 107.3 defines the term "visual observer." Any VO participating in operations conducted under this Waiver must meet the requirements listed in § 107.33 throughout the duration of flight operations.

2. This Waiver may not be combined with any other waiver(s), authorizations(s), or exemption(s) without specific authorization from the FAA;
3. The FAA has the authority to cancel or delay any or all flight operations if the safety of persons or property on the ground or in the air are in jeopardy or there is a violation of the terms of this Waiver;
4. A copy of this Waiver must be accessible and available to the remote PIC at the ground control station during sUA operations that are the subject of this Waiver;
5. The Responsible Person listed on this Waiver must maintain a current list of pilots by name and remote pilot certificate number used in operations under this Waiver. This list must be presented for inspection upon request from the Administrator or an authorized representative;
6. The Responsible Person listed on this Waiver must maintain a current list of sUA by registration number(s) used in operations under this Waiver. This list must be presented for inspection upon request from the Administrator or an authorized representative;
7. For the purposes of this Waiver, direct participants are the remote PICs, persons manipulating the controls, VOs, and any persons whose involvement is necessary for safety of the sUA operation. All other persons are considered non-participants;

sUAS Operations Special Provisions; Cloud Minimums, Beyond Visual Line of Sight and Operation from a Moving Vehicle special provisions;

8. All operations under this Waiver must use one or more VO;
9. Operations may not be conducted at night, as defined in 14 CFR § 1.1;
10. sUAS operations may be conducted from a land vehicle no further than 500 feet horizontal distance from the RPIC, as described in the waiver application;
11. Prior to conducting waived operations, the Responsible Person listed on the Waiver must ensure the remote PIC, VO, and driver have general knowledge of the topography and environment for the planned flight route and have briefed the intended flight to address matters such as vehicle route, speeds, obstacles and weather;
12. The Responsible Person must ensure vehicle movement does not interfere with the duties and responsibilities of the remote PIC and/or VO;
13. The remote PIC must ensure the area ahead of the small unmanned aircraft is scouted immediately prior to the arrival of the sUA to ensure no hazards are present;
14. The remote PIC, the person operating the moving vehicle, and the VO must be different people and may not serve multiple responsibilities during the operation;
15. The VO must have an unobstructed field of view from the moving vehicle and keep the sUA in sight at all times, as indicated in the waiver application;

16. The Responsible Person must ensure that the loss of data link procedures account for the dynamic location of the remote PIC. These procedures must include a safe flight termination method or a safe lost link flight path around all obstacles, adverse weather conditions, non-participating aircraft, and persons on the ground, which are encountered during the operation;
17. As described in the waiver application, the manipulator of the sUAS controls must be the holder of a remote pilot certificate with an sUAS rating;
18. As described in the waiver application, all vehicles must maintain communication with the state or local law enforcement vehicles providing escort while operating along the route;
19. Prior to conducting operations under this Waiver in Class G airspace, the Responsible Person must file a Notice to Air Mission (NOTAM) not more than 72 hours prior to the start of waived operations, but not less than 24 hours prior to conducting operations that are the subject of this Waiver. The NOTAM must include the location and/or operating area, altitude, and time and nature of the activity. The Responsible Person must also ensure the NOTAM has been issued prior to conducting waived operations;
20. Prior to operations under this Waiver, all Direct Participants must attend a safety briefing that addresses, at minimum, the following items as applicable:
 - a. Designated positions, physical locations, responsibilities, and Crew Resource Management,
 - b. Planned flight operating area,
 - c. Designated launch and recovery areas,
 - d. Verification of geo-fence boundaries,
 - e. Verification of return home and land flight profile, and course,
 - f. Procedures for avoidance of other aircraft and obstacles,
 - g. Procedures for operating under this waiver,
 - h. Land vehicle speed,
 - i. Intended flight path,
 - j. Abnormal procedures, and
 - k. Emergency procedures;
21. The remote PIC, the VO(s), and the person operating the moving land-based vehicle must be designated in advance of the commencement of the operation, and may serve only in a single role throughout the operation. For example, the person who operates the landbased vehicle may not simultaneously act as the VO;
22. The sUAS ground control station must display in real-time the sUA altitude, position, direction of flight, and sUA flight mode, and be configured to audibly or visually alert the remote PIC of degraded system performance and loss of Control link with the sUA. This information must be available at all times to the remote PIC;
23. ADS-B out (1090/978 MHz) may not be transmitted from the sUAS when operating pursuant to this Waiver;
24. All emitters used in sUAS must be in compliance with all applicable FCC regulations and all provisions of the FCC authorization granted for the emitter. A FCC experimental authorization may not be used for sUAS operations under this Waiver;

25. The remote PIC must ensure that the sUA remains clear of clouds, and that the ability of VO(s) to maintain visual line of sight of the sUA is not hampered by clouds;
26. The sUA must not be operated with less than 3 statute miles visibility as observed from the control station, and the sUA must remain 200 feet below clouds and 1000 feet horizontally from clouds;
27. The remote PIC must ensure sufficient VO(s) are used to identify any non-participating aircraft prior to their entry into the planned operational area. For the purpose of this Waiver, sufficient VO(s) is defined as the minimum number of VO(s) required to continuously observe at least a 2 statute mile radius of airspace surrounding the sUA in flight. The remote PIC must confirm VO(s) are physically located such that the remote PIC receives sufficient notice to ensure the UA remains well clear of all other aircraft;
28. Prior to operations, the Responsible Person must develop an operations manual that contains at least the following items:
 - a. Operator name, address, and telephone number,
 - b. Method of manual distribution and revision,
 - c. Certificate of Waiver. The operations manual must include a copy of the current Waiver(s),
 - d. Aircraft description and limitations list by aircraft type and model,
 - e. Method to ensure safety of non-participating persons and aircraft,
 - f. Safety briefing of Direct Participants,
 - g. Direct Participant minimum requirements,
 - h. Method of communications,
 - i. Normal operating procedures,
 - j. Abnormal operating procedures,
 - k. Emergency procedures,
 - l. Crew Resource Management,
 - m. Risk management, and
 - n. Accident Notification. The operations manual must contain procedures for notification and reporting of accidents in accordance with 14 CFR § 107.9 and NTSB 830;
29. The Responsible Person must ensure a copy of the current operations manual is available to the remote PIC and all other direct participants prior to and during sUAS operations that are the subject of this Waiver;
30. The Responsible Person must ensure all operations conducted under this Waiver follow the procedures outlined in the current operations manual. If a discrepancy exists between the provisions in this Waiver and the procedures outlined in the operations manual, the provisions of this Waiver take precedence and must be followed;
31. The Responsible Person may update or revise its operations manual. The Responsible Person must track such revisions and present revised documents to the Administrator or an authorized representative upon request. The Responsible Person must also present revised documents when applying for extension of or amendment to this Waiver. If any revision to the manual would be contrary to the information provided in the waiver application or obviate a condition or limitation of this waiver, then the Responsible Person must apply for an amendment to this Waiver;

32. The Responsible Person must ensure each remote PIC who will conduct operations under this Waiver is trained in a manner that addresses the items listed in § 107.49(a)-(e) and in a manner that is consistent with how the sUAS will be operated under this Waiver. All training and demonstration for all remote PICs and VOs must be documented and made available upon request by the Administrator or an authorized representative. Training operations may only be conducted under the standard requirements of part 107 (without waiver). The training must include:
- sUA limitations,
 - sUA programming,
 - sUA operational procedures,
 - Abnormal procedures,
 - Air traffic avoidance procedures,
 - Crew Resource Management,
 - sUA flight training, and
 - Demonstration of sUA ground and flight skills;
33. Prior to operations under this Waiver, all direct participants must attend a safety briefing that addresses at minimum, the following items:
- Designated positions, physical locations, responsibilities, and Crew Resource Management,
 - Planned flight operating area,
 - Designated launch and recovery areas,
 - Verification of geo-fence boundaries,
 - Verification of return home and land flight profile, and course,
 - Verification of emergency landing site(s), land profile, and course,
 - Procedures for avoidance of other aircraft,
 - Procedures for operating under this Waiver;
34. Communication between the remote PIC and VO must occur to facilitate, when necessary, the remote PIC taking action to maneuver the sUA with sufficient time to:
- Give way to all other aircraft in accordance with § 107.37,
 - React to any unforeseen operational or mechanical failure without creating a hazard to other people, other aircraft, or property in the event of a loss of control of the sUA, and
 - Maintain compliance with this Waiver and the requirements of part 107;
35. Operations subject to this waiver must cease as soon as possible in a manner that does not jeopardize the safety of human beings, property or other aircraft, if, at any time:
- Safety of human beings or property on the ground or in the air is in jeopardy,
 - Any failure to comply with the provisions of this Waiver exists,
 - Full-duplex communications cannot be maintained between the remote PIC and any VO participating in the operation,
 - A non-participating aircraft enters the designated flight operating area,
 - GPS signal is lost, or
 - sUA GPS location information is degraded;
36. No sUA flight that occurs under this waiver may carry the property of another for compensation or hire;

37. Operations conducted under this Waiver may only occur with the make and model sUAS described in the waiver application proposed operations of any other manufacturer, make or model of sUAS will require a new waiver application or a request to amend this Waiver;
38. All sUAS operations conducted in accordance with this Waiver must comply with all manufacturer recommendations and limitations for the sUAS;
39. The Responsible Person must maintain each sUAS and its components in accordance with manufacturer's instructions and recommendations. sUAS maintenance includes scheduled and unscheduled overhaul, repair, inspection, modification, replacement, and system software upgrades of the sUAS and its components necessary for flight. A log of all maintenance performed must be kept for each aircraft operated under this waiver. This log must be available to the remote PIC for review prior to conducting operations that are the subject of this waiver. Each sUAS maintenance log must be presented to the Administrator when requested. The log must contain the following information for each maintenance activity:
 - a. A description (or reference data acceptable to the Administrator) of work performed,
 - b. The date of completion of the work performed,
 - c. The name of the person who performed the work, and
 - d. The signature of the person who performed the work;
40. Any sUAS that has undergone maintenance must undergo a functional test flight prior to conducting operations under this Waiver. A log entry must be made for each functional test flight. The log entry must contain at minimum the:
 - a. Calendar date,
 - b. sUA registration number,
 - c. Remote PIC who performed the functional test flight,
 - d. Duration of the flight, and
 - e. The result of the functional flight test;
41. A functional test flight may only be conducted under the standard requirements of part 107 (without waiver);
42. The sUA must be equipped with high visibility lighting to increase the conspicuity of the sUA to 1 statute mile;
43. The sUAS ground control station must display in real time the following information: sUA altitude, sUA position, sUA direction of flight, and sUAS flight mode, as described in the waiver application. This information must be available at all times to the remote PIC;
44. The sUAS must audibly and visually alert the remote PIC of degraded system performance, sUAS malfunction, or loss of Command and Control (C2) link between the ground control station and the sUA;
45. Prior to conducting operations under this Waiver, the remote PIC must determine all control links used in the sUAS, will maintain the ability to control the sUA at the maximum planned distance for the proposed operation. At all times during operations that are the subject of this Waiver, the remote PIC must maintain the ability to direct the sUA to ensure compliance with the applicable provisions of this waiver;

46. If the remote PIC loses command or control link with the sUA, the sUA must follow a predetermined route to immediately reestablish command and control link. If command and control link is not immediately reestablished and the remote PIC no longer has the ability to direct the sUAS to ensure compliance with applicable provisions of part 107, the sUA must follow the loss of command and control procedure as described in the waiver application;
47. Operations conducted under this Waiver are limited to the location meeting the performance based criteria described in the waiver application; and
48. Operations are limited to using the DJI Mini 3 Pro and the DJI M30T sUA's.