

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

ISSUED TO

**Project Wing**  
**Responsible Person: Chris Jackman**  
**Waiver Number: 107W-2018-12280**

ADDRESS –

**1600 Amphitheatre Parkway**  
**Mountain View, CA 94043**

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

sUAS flight operations beyond the visual line of sight of the Remote Pilot in Command and the Visual Observer.

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

**14 CFR §107.31 Visual line of sight aircraft operations**  
**14CFR § 107.33(b) and (c)(2) Visual Observer**

**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 30, inclusive, are set forth on the attached pages.

This Certificate of Waiver is effective from May 22, 2018 to May 31, 2022 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 Project Wing**

### **General.**

The FAA's Flight Standards Service has reviewed your application to ensure compliance with the requirements of 14 CFR § 107.200. The Administrator finds that the proposed sUAS 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 sUAS in the manner you described. Adherence to the provisions of this Waiver establishes the required level of safety within the national airspace system.

This Waiver may be canceled at any time by the Administrator, the person authorized to grant the Waiver, or a representative designated to monitor a specific operation. 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 may serve as justification for cancellation.

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

**14 CFR § 107.31**, Visual line of sight aircraft operations, is waived to allow sUAS operations when the Remote Pilot in Command (remote PIC) and the Visual Observer(s) (VO) may not be able to see the aircraft.

**14 CFR § 107.33(b) and (c) (2)**, Visual Observer, is waived to allow the use of multiple VO, without each VO having the ability to see the aircraft in the manner specified in 107.31.

**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 (PIC), manipulator of the controls, and Visual Observer (VO) complies 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 are informed on the terms and provisions of this Waiver and the strict observance of the terms and provisions herein;
  - b. Must ensure the remote PIC, manipulators of the controls, and VO are informed and familiar with part 107 regulations not waived; and
  - c. The above (a and b) must be documented and must be presented for inspection upon request from the Administrator or an authorized representative.
2. This Waiver may be combined with waiver 107W-2016-01223 as amended, and 107W-2018-12649 as amended. This waiver must 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 available during sUAS 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 the Waiver holder's operations. 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 small unmanned aircraft (sUA) by registration number(s) used in the Waiver holder's operations. This list must be presented for inspection upon request from the Administrator or an authorized representative;

**Waiver Specific Special Provisions.** sUAS operations may be conducted under this waiver, Beyond Visual Line of Sight (BVLOS) of the remote PIC and VO, provided:

### **Operational Provisions**

7. The Responsible Person must ensure that a copy of the current operations manual is available to the remote PIC and all other participants during sUAS operations that are the subject of this Waiver;
8. The Responsible Person may update or revise its operations manual. The Responsible Person must track such revisions and present updated and revised documents to the Administrator or an authorized representative upon request. The Responsible Person must also present updated and revised documents if it applies for extension or amendment. If the Responsible Person determines that the intended operation differs from the purpose for which this waiver is granted, or if the intended operation would be contrary to or obviate a condition or limitation of this waiver, then the Responsible Person must apply for an amendment to this Waiver;
9. Prior to conducting operations under this Waiver, the remote pilot and VO(s) must be proficient in visual line of sight (VLOS) operations and trained in accordance with the waiver applicants training program. This proficiency and training must be documented and must be presented for inspection upon request from the Administrator or an authorized representative;
10. The remote PIC must ensure sufficient VO(s) are used to identify any non-participating aircraft and non-participating persons prior to their entry into the planned operational area. When operations are performed in combination with Waiver 107W-2018-12649, sufficient VO(s) must be used to identify non-participating aircraft only;
11. Prior to operations under this Waiver, all persons who will act as remote PIC, and all participants in the operation must participate in a safety briefing that addresses at minimum, the following items:
  - a. Designated positions and responsibilities/Crew Resource Management,
  - b. Flight operating area,
  - c. Designated launch and recovery areas,
  - d. Verification of geo-fence boundaries,
  - e. Lost link contingency plan,
  - f. GPS availability for the planned duration of the sUAS flight operation,
  - g. Normal procedures,
  - h. Abnormal procedures, and
  - i. Emergency procedures;

12. Communication between the remote PIC, and VO must allow for the remote PIC to maneuver the sUA with sufficient time to:
  - a. Give way to all other aircraft in accordance with § 107.37,
  - b. 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 for any reason, and
  - c. Maintain compliance with this Waiver and unwaived provisions of part 107;
13. Operations conducted subject to this waiver must cease if, at any time:
  - a. Safety of human beings or property on the ground or in the air is in jeopardy,
  - b. There is a failure to comply with the provisions of this Waiver,
  - c. Full-duplex communications cannot be maintained between the remote PIC and the VO,
  - d. sUA control link is lost,
  - e. A non-participating vehicle, aircraft or person enters the designated flight operating area,
  - f. GPS signal is lost, or
  - g. sUA GPS location information is degraded;
14. All planned launches and recoveries of the sUA must be within VLOS of the remote PIC;
15. As described in the application, operations must be coordinated with other aircraft operators prior to any sUAS operations subject to this Waiver;
16. sUA operated pursuant to this Waiver may not carry the property of another for compensation or hire;

### **Technical Provisions**

17. All sUA operations conducted in accordance with this Waiver must comply with the manufacturer User Manual, including recommendations and limitations;
18. The Responsible Person must maintain each sUAS and its components in accordance with manufacturer's instructions and recommendations. sUA 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 sUA maintenance log must be presented to the Administrator when requested;
19. 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;

20. The sUA must be equipped with high visibility markings and lighting, during periods of civil twilight and night visible for at least 3 statute mile(s);
21. All sUA operated under this Waiver must be capable of semi-autonomous operations;
22. The sUAS ground control station must display in real time, sUA altitude, sUA position, sUA direction of flight information, and sUA flight mode. This information must be available at all times to the remote PIC;
23. The sUAS ground control station must audibly or visually alert the remote PIC of degraded system performance, sUAS malfunction, and loss of Command and Control link with the sUA;
24. Prior to operations that are the subject of this Waiver, the remote PIC must determine the Control link with the sUA has performance capabilities that exceed the planned ranges for the proposed operation. At all times during normal operations that are the subject of this Waiver, the remote PIC must maintain Command and Control link with the sUA;
25. If communication between the VO and the remote PIC is by use of an electronic device:
  - a. The device must be continuous full-duplex,
  - b. The remote PIC's device must be hands-free, and
  - c. There must be a reliable back-up communication method;
26. ADS-B out (1090/978 MHz) may not be transmitted from the sUA when operating pursuant to this Waiver;
27. All emitters used in the sUAS must be in compliance with all applicable FCC regulations and all provisions of any FCC authorization granted for the emitter;
28. sUAS operations may not exceed 200 feet above ground level;

### **Environmental Provisions**

29. Operations under this Waiver may only be conducted in Class G airspace; and
30. sUAS operations subject to this Waiver may occur at the three areas described in attachment A of the waiver application.