U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

CERTIFICATE OF WAIVER

Issued To: Mark J. Vogel
Responsible Person: Mark Vogel
Waiver Number: 107W-2019-02503

Address:
The Aerospace Corporation
14301 Sullyfield Circle, Unit C
Chantilly, VA 20151

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

Night small unmanned aircraft system (sUAS) operations.

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

14 CFR § 107.29—Daylight operation

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 13, inclusive, are set forth on the attached pages.

This Certificate of Waiver is effective from June 4, 2019, to June 30, 2023, and is subject to cancellation at any time upon notice by the Administrator or an authorized representative.

BY DIRECTION OF THE ADMINISTRATOR

JOSEPH V FAGAN JR

Digitally signed by JOSEPH V FAGAN JR
Date: 2019.06.04 14:51:07 -04'00'

General Aviation and Commercial Division, AFS–800

SPECIAL PROVISIONS ISSUED TO

Mark J. Vogel

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 the 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 § 107.29, Daylight operation, is waived to allow sUAS operations during night.

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 such requests.

Common Special Provisions. The Responsible Person is directly responsible for safety of operations conducted under this Waiver and will ensure the 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 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 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;

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 Pilot in Command (remote PIC) at the ground control station during sUAS operations that are the subject of this Waiver;

[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.

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 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;

7. For the purposes of this Waiver, Direct Participants are the remote pilots in command (PICs), persons manipulating the controls, visual observers (VOs), and any persons whose involvement is necessary for safety of the sUAS operation. All other persons are considered non-participants;

Operations as defined in 14 CFR § 1.1, Specific Special Provisions. sUAS operations may be conducted under this waiver provided:

8. All operations under this Waiver must use one or more VO;

9. Prior to conducting operations that are the subject of this Waiver, the remote PIC and VO must be trained, as described in the Waiver application, 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;

10. The area of operation must be sufficiently illuminated to allow both the remote PIC and VO to identify people or obstacles on the ground, or a daytime site assessment must be performed prior to conducting operations that are the subject of this Waiver, noting any hazards or obstructions;

11. The sUA 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;

12. ADS-B out (1090/978 MHz) may not be transmitted from the sUAS when operating pursuant to this Waiver; and

13. 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.