U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

CERTIFICATE OF WAIVER AND AUTHORIZATION

ISSUED TO

Vector Aerial Systems, LLC
Responsible Person: Steve Stivers
Waiver Number: 107W-2026-01352

ADDRESS –

1971 Concord Rd
Columbus, OH 43212

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

Small unmanned aircraft system (sUAS) operations at night and during civil twilight without anti-collision lights meeting the requirements of § 107.29(a)(2) & (b), Acting as a remote pilot in command (PIC) or visual observer (VO) in the operation of more than one small unmanned aircraft (sUA) at the same time, and pursuant to 14CFR § 89.105 to operate its UA in the National Airspace System (NAS) without broadcasting Remote Identification (RID), subject to the conditions of this waiver, and §107.41 Operations in Certain Airspace (May conduct operations under this Waiver at or below UAS Facility Maps (UASFM) for any airspace below published UASFM altitudes)

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

107.29(a)(2) & (b) - Anti-collision light requirement for operations at night and during periods of civil twilight, 107.35 - Operation of multiple small unmanned aircraft systems

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

This Certificate of Waiver is effective from 06/25/2026, to 06/30/2030, and is subject to cancellation at any time upon notice by the Administrator or an authorized representative.

BY DIRECTION OF THE ADMINISTRATOR

CHRISTOPHER M DOHERTY

Digitally signed by CHRISTOPHER M DOHERTY
Date: 2026.06.29 15:52:25 -05'00'

Emerging Technologies Division, AFS–700

SPECIAL PROVISIONS ISSUED TO

Vector Aerial Systems, LLC

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 § 107.29(a)(2) & (b), Operation at night, is waived to allow sUAS operations at night with alternate means of compliance for anti-collision light requirements

- 14 CFR § 107.35, Operation of multiple small unmanned aircraft systems, is waived to allow a person to act as the remote Pilot in Command (PIC) or visual observer (VO) to operate multiple small UAS simultaneously

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;
2. This Waiver may not be combined with any other waiver(s), authorization(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 operation 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 operation 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;
8. If a discrepancy exists between the provisions in this Waiver and the waiver application, the Waiver takes precedence and must be followed;

Drone Light Show Waiver Special Provisions

9. The remote PIC may conduct operations of up to **600** sUA consisting of the makes and models specified in the application, equipped with redundant flight control and transmission systems, and must ensure adequate simultaneous control of the sUA so they remain inside the area of operation, as described in the waiver application

10. Drone Light Show (DLS) Flight Crew: Each DLS flight crew must consist of at least:
    a) The remote PIC who is responsible for supervising the show operation, all personnel and UAS involved;
    b) An additional crew member with a Remote Pilot Certificate who assists the remote PIC in all duties and must concur with the remote PIC on the final show plan and Pre-Flight Checklist;
    c) Visual Observers (VO/s) the number of which are scalable to the size of the Show **(1 VO per 250 sUA)** and are positioned to properly monitor the UAS, airspace, Flight and Restricted Areas during show operations. There must be a direct communication means between all DLS Flight Crew

11. Operational Area: Must consist of a minimum of four (4) zones that are subject to sizing based on the Show altitude, number of UAS used, maximum UAS speed and calculated horizontal trajectory. These zones have the following minimum requirements:
    a) Flight Area – must contain the entire flight path from takeoff through landing;
    b) Normal (soft) Geo-fence – the initial restriction boundary for UAS Show operations. If a UAS violates the soft geo-fence it must trigger a 'Return to Home" or "Land Now" command;
        i) Bubble Spacing: The soft geofence is a local 4m radius around each individual drone as it travels along its respective flight path. If a drone deviates from its flight path enough to breach that radius, that drone will Autoland;
    c) Hard Geo-fence – the outer restriction boundary for UAS operations that immediately abuts the outer boundary of the Show Operational Area. If a UAS violates the hard geo-fence it must trigger a 'kill' command to turn off the motors;
    d) Restricted Area – begins at the outer edge of the Hard Geo-fence and is bounded by the security perimeter. Spectators are not allowed into the restricted area and it must be monitored by DLS personnel for intrusion;
        i) The Restricted Area must be based on a Free Fall formula that takes into account the horizontal distance a UA will travel if power is terminated at the Hard Geofence boundary. The formula must contain variables for maximum altitude, initial velocities and tail wind speeds and include an additional safety factor;
        ii) The Restricted Area width must be increased by a minimum 33 feet (10 meters) for every 100 feet increase in Show altitude

12. Operational Proficiency:
    a) The Responsible Person must ensure all formations and show elements outside normal operations, including but not limited to: maximum number of drones in a performance, deployment of new drones (UA), firmware updates, or new performance parameters, must be tested and approved in a secured (sterile) testing environment free of unauthorized personnel prior to any public performance;

b) In accordance with Part § 107.7(d) the Administrator may require a satisfactory demonstration of show capabilities, procedures, and safety and security measures conducted under surveillance by designated FAA personnel in a sterile environment free of non-participating persons, prior to continued show operations

13. FSDO Notification: The responsible person or Designee must ensure the local Flight Standards District Office manager is notified at least 72 hours in advance. The notification must include:
    a) The location of the planned UAS operation;
    b) The date/time(s) of the planned UAS operations; and
    c) A copy of the site plan including the Normal (Soft) Geo-Fence, Hard Geo-Fence, and Restricted Area boundary lines **with distances***, location of the Flight Area, Launch and Recovery Site, Ground Control Station, audience location(s) and total number of sUA and VO's that will be used in the show; and
    d) A copy of this Waiver and any associated altitude Waivers and/or Airspace Authorizations; The locations of local Flight Standard District Offices and contact information can be located at **https://www.faa.gov/about/office_org/field_offices/fsdo**

    NOTE: sUA that use a 'Bubble Spacing' method of soft geofencing may not necessarily have a defined soft geofence line as this method is dynamic and follows the UA position.

14. PRE-SHOW SIMULATION TESTING Prior to conducting operations, simulation-based testing will be conducted as described in the waiver application

15. Training: The Responsible Person must ensure:
    a) The Remote PIC and the additional certified remote pilot supporting the remote PIC: must be trained and proficient on each UA system used in these waivered operations including the GCS, Show software, Site Performance Criteria, Security Measures, crew communications and these Waiver Special Provisions;
    b) DLS Flight Crew: all members of the DLS Flight Crew conducting operations under this Waiver are trained, as described in the Waiver application, and 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

16. At all times during operations, the emergency sUA commands described in the waiver application, must be available to the remote PIC

17. Remote ID (RiD):
    a) All operations, that are the subject of this waiver, are authorized without the use of Remote ID (RiD), as required in 14 CFR Part § 89.105;
    b) The authorization is not transferable and only applies when the operator is conducting Part 107 Drone Light Show Operations;
    c) This authorization provides relief from the operating provision in 14 CFR Part § 89.105 only. It does not provide relief from the production requirements in 14 CFR Part § 89.515, which requires unmanned aircraft produced after September 16, 2022, to have Standard Remote Identification, unless excepted under 14 CFR Part § 89.501(c); and
    d) In order to produce UA without Remote Identification to be operated pursuant to this authorization, an exemption from 14 CFR Part § 89.515 may be needed

18. Pre-Flight Checklist: The remote PIC and additional certified remote pilot supporting the remote PIC must sign off (date/signature) a Pre-Flight Checklist which documents that the site plan, show elements, pre and

post flight activities have been successfully completed. The Pre-Flight Checklist must be retained and presented to the Administrator or Law Enforcement on request

19. Show Changes:
    a) Any change in the finalized Show parameters which could affect the flight characteristics, Flight Area, Geo-fence areas, Restricted Area, direction of flight, or flight environment must trigger a re-evaluation and generation of a new Pre-Flight Checklist;
    b) All Show Changes must have the concurrence of the Responsible Person

20. Communication between the remote PIC and VO(s) must allow for the remote PIC to light the sUA and/or ground the sUA with sufficient time to yield right-of-way in accordance with 14 CFR Part § 107.37 as described in the waiver application

21. All operations must use the lighting system, procedures, and methodology in a manner sufficient to alert approaching aircraft as described in the Waiver application

22. Reporting to **9-AVS-AFS-750-Part107Reports@faa.gov** : The Responsible Person shall email the Administrator on a Quarterly basis, the information listed below. The Responsible Person must retain all such records for a period of 90 days after the expiration date of the Waiver.
    a) For each Drone Light Show sUAS flight operation conducted under the terms of this waiver:
        i) Date and location of operation;
        ii) Waiver number the show was conducted (including associated § 107.51(b) as applicable);
        iii) Make and model of the sUA;
        iv) Drone Show Command and Control Software and Version Number;
        v) Maximum number of UAS allowed for a DLS by Waiver;
        vi) Total number of DLS operations for the Quarter;
        vii) Maximum number of UAS in a performance for the Quarter;
        viii) Average number of UAS in a performance for the Quarter;
        ix) Total number of UAS Dropouts for the Quarter. (defined as the total number of UAS that perform a RTH/RTH or Land Now Failsafe maneuver in response to an abnormal condition. Does not include failure to launch);
        x) Total number of UA to UA collisions for the Quarter;
        xi) Number of injuries incurred for the Quarter (if any)

23. Operations conducted under this Waiver may only occur with the make and model sUAS and Show control software described in the waiver application. Proposed operations of any other manufacturer, make or model of sUAS, or Show control software will require a new waiver application or request to amend this Waiver

24. Ground Control Station (GCS), Weather, Control and Communications (C2) System:
    a) Telemetry: The sUAS ground control station must display in real-time the sUA altitude, position, direction of flight, ground speed, C2 signal strength, battery condition for each sUA as described in the Waiver application;
    b) Alerting: The remote PIC must ensure the GCS is configured to audibly and/or visually alert the remote PIC of degraded system performance, geofence loss of containment, and loss of Control link with each sUA;
    c) Emergency Profiles: The remote PIC must ensure the GCS is configured for automated emergency actions (e.g. RTL/RTH, altitude descend, position hold etc.) as described in the Waiver application;
    d) Sensors: the remote PIC must ensure any installed collision/obstacle avoidance sensors are operational; and

e) Weather: A method to measure and verify wind speed must be on-site and used to verify the nominal and gust wind speeds are within the safe operating parameters of the UAS. A final weather check of the wind speeds and forecasted conditions must be made within 10 minutes of launch time

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

26. Flight Termination and Geo-Fencing Systems
    a) Each sUAS must be equipped with the Flight Termination System (FTS) described in the waiver application. Prior to operations subject to this waiver, the FTS must be tested and verified to operate as described in the waiver application;
    b) Geo-Fencing: Each sUAS must have its flight area defined in 3 dimensional space bounded by a Global Positioning System (GPS) that may be augmented by Real-Time Kinematic Positioning (RTK). The Show flight plan must be uploaded to each individual UAS along with its associated Home Point

27. UAS Failures: the following thresholds will be used to determine the appropriate abort action (Return to Home, Return to Land, Show Hold, Land Now etc.)
    a) If the GPS or RTK system signal is lost and cannot established within 1 minute, the Show shall be held and the remote PIC will land the UA in the safest manner possible subject to positioning and altitude;
    b) If at any point during flight five (5) or more UA exhibit abnormal behavior, the remote PIC shall hold the show and land the UA. Abnormal behavior shall not include the UA entering a failsafe response as intended. Examples of expected failsafe conditions include landing because of a low battery, battery voltage sag, battery overheat, or loss of GPS.
    c) Immediate Land/Land Now: the Show will be landed immediately if;
        i) Three (3) UA impact the hard geofence;
        ii) Any UA incurs an inflight fire;
        iii) Any UA to UA collision that does not lead to a normal failsafe response

28. The remote PIC, and VO(s) must be able to determine the position, attitude, altitude, and direction of flight of each sUA relative to any other aircraft, persons, property, and obstructions during waivered operations. Communication must be adequate for any person directly participating in the operation to halt operations when an unsafe condition occurs

29. The remote PIC must ensure that an individual system failure must not interfere with the operation of any other sUA or cause incidents, accidents, or loss of control involving any other sUA that are subject to this Waiver

30. Prior to sUA operations that are subject to this Waiver, the remote PIC must ensure that the flight controller for each aircraft, geo-fence systems and the associated DLS flight management system (Show Software) operate as described in the waiver application

31. Environment:
    a) Operations conducted under this Waiver are limited to the locations meeting the site selection performance procedures as stated in the Waiver application; and
    b) The Responsible Person must ensure that the area of operation is sterile as described in the waiver application