U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D.C. 20591

May 1, 2015

Exemption No. 11476
Regulatory Docket No. FAA–2015–0296

Mr. Edward Juden
1313 Kingsbrook Circle
McKinney, TX 75070

Dear Mr. Juden:

This letter is to inform you that we have granted your request for exemption. It transmits our decision, explains its basis, and gives you the conditions and limitations of the exemption, including the date it ends.

The Basis for Our Decision

By letter posted February 6, 2015, you petitioned the Federal Aviation Administration (FAA) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct aerial photography, agriculture field inspection, and property monitoring.

See Appendix A for the petition submitted to the FAA describing the proposed operations and the regulations that the petitioner seeks an exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

Airworthiness Certification

The UAS proposed by the petitioner is a DJI Phantom 2 Vision+.

In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection[1]. The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (*see* Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA−2014−0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA−2014−0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

Having reviewed your reasons for requesting an exemption, I find that—

- They are similar in all material respects to relief previously requested in Grant of Exemption Nos. 11062, 11109, 11112, and 11213;
- The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, and 11213 also apply to the situation you present; and
- A grant of exemption is in the public interest.

Our Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, Mr. Edward Juden is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

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[1] Aerial data collection includes any remote sensing and measuring by an instrument(s) aboard the UA. Examples include imagery (photography, video, infrared, etc.), electronic measurement (precision surveying, RF analysis, etc.), chemical measurement (particulate measurement, etc.), or any other gathering of data by instruments aboard the UA.

Conditions and Limitations

In this grant of exemption, Mr. Edward Juden is hereafter referred to as the operator.

Failure to comply with any of the conditions and limitations of this grant of exemption will be grounds for the immediate suspension or rescission of this exemption.

1. Operations authorized by this grant of exemption are limited to the DJI Phantom 2 Vision+ when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

2. Operations for the purpose of closed-set motion picture and television filming are not permitted.

3. The UA may not be operated at a speed exceeding 87 knots (100 miles per hour). The exemption holder may use either groundspeed or calibrated airspeed to determine compliance with the 87 knot speed restriction. In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.

4. The UA must be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

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

6. All operations must utilize a visual observer (VO). The UA must be operated within the visual line of sight (VLOS) of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times; electronic messaging or texting is not permitted during flight operations. The PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight. The PIC must ensure that the VO can perform the duties required of the VO.

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations herein take precedence and must be followed.

Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS−80) may be contacted if questions arise regarding updates or revisions to the operating documents.

8. Any UAS that has undergone maintenance or alterations 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 under this exemption. Functional test flights may only be conducted by a PIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.

9. The operator is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, e.g. inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.

11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

12. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.

13. Under this grant of exemption, a PIC must hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC must also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government. The PIC must also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be

operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. However, training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

15. UAS operations may not be conducted during night, as defined in 14 CFR § 1.1. All operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.

16. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.

17. The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

18. 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.

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

20. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.

21. Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA). All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder may apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the attached COA.

22. All aircraft operated in accordance with this exemption 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.

23. Documents used by the operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

24. The UA must remain clear and give way to all manned aviation operations and activities at all times.

25. The UAS may not be operated by the PIC from any moving device or vehicle.

26. All Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and
    b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.

    The PIC, VO, operator trainees or essential persons are not considered nonparticipating persons under this exemption.

27. All operations shall be conducted over private or controlled-access property with permission from the property owner/controller or authorized representative. Permission from property owner/controller or authorized representative will be obtained for each flight to be conducted.

28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS−80) 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.

If this exemption permits operations for the purpose of closed-set motion picture and television filming and production, the following additional conditions and limitations apply.

29. The operator must have a motion picture and television operations manual (MPTOM) as documented in this grant of exemption.

30. At least 3 days before aerial filming, the operator of the UAS affected by this exemption must submit a written Plan of Activities to the local Flight Standards District Office (FSDO) with jurisdiction over the area of proposed filming. The 3-day notification may be waived with the concurrence of the FSDO. The plan of activities must include at least the following:
    a. Dates and times for all flights;
    b. Name and phone number of the operator for the UAS aerial filming conducted under this grant of exemption;
    c. Name and phone number of the person responsible for the on-scene operation of the UAS;
    d. Make, model, and serial or N−Number of UAS to be used;
    e. Name and certificate number of UAS PICs involved in the aerial filming;
    f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the filming production event; the list of those who gave permission must be made available to the inspector upon request;
    g. Signature of exemption holder or representative; and
    h. A description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which filming will be conducted and the altitudes essential to accomplish the operation.

31. Flight operations may be conducted closer than 500 feet from participating persons consenting to be involved and necessary for the filming production, as specified in the exemption holder's MPTOM.

Unless otherwise specified in this grant of exemption, the UAS, the UAS PIC, and the UAS operations must comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

This exemption terminates on May, 31, 2017, unless sooner superseded or rescinded.

Sincerely,
/s/
John S. Duncan
Director, Flight Standards Service

Enclosures

United States Department of Transportation
Docket Operations
1200 New Jersey Ave.SE
West Building Ground Floor Room W12-140
Washington DC 20590

Re: Exemption Request Pursuant To Section 3 3 3 of the FAA Reform Act of 2012

Dear Sir or Madam:
I am writing pursuant to the FAA Modernization and Reform Act of2012 (the "Reform Act") and the procedures contained in 14 C.F .R. 11, to request Edward Juden, owner and operator of a small UAS, and FAA Private Pilot (license #2860585) be exempted from the Federal Aviation Regulations (FAR's) listed below.
The exemption is needed in order to operate a small lightweight unmanned aircraft system (UAS) commercially in airspace regulated by the Federal Aviation Administration (FAA). These operations will be conducted within and under the conditions outlined herein or as may be established by the FAA as required by Section 333.§11.81.

The following aspects of Section 333 of the FAA Modernization and Reform Act of 2012 should be considered.

1. If certain unmanned aircraft systems, if any, as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard to users of the national airspace system or the public or pose a threat to national security; and

   The operated UAS, Phantom 2 Vison plus, meets all the requirements of an Ultralight aircraft except for the ability to carry a passenger. This aircraft is under 254 pounds as required for powered Ultralights, they are electric so they have less than 5 gallon fuel capacity, it is not capable of speeds over 55 knots, and it's power-off stall speed is under 24 knots calibrated airspeed. If as requested, it is classified as an Ultralight Aircraft by regulations it cannot be used in congested airspace and can only be used in Class G Airspace without special authorization. As part of this application the UAS will only be used Line of sight in order to meet the public safety requirement of an exemption to Title 14 Chapter I Subchapter F Part 103 Subpart B §103.21

2. Whether a certificate of waiver, certificate of authorization, or airworthiness certification under section 44704 of title 49, United States Code, is required for the operation of unmanned aircraft systems identified under paragraph (1).

   If as requested this UAS is classified as an Ultralight, it would not require a certificate of waiver, certificate of authorization, or airworthiness certification. As part of this application I will apply

for a Certificate of Authorization so this UAS could support local Emergency Services as necessary.

The following information is submitted to meet the requirement of the above act.

1. Name and address
    a. Edward Juden
    b. 1313 Kingsbrook Circle, Mckinney, TX 75070
2. Section of 14 CFR from which I seek an exemption
    a. 103.1 (a) Is used or intended to be used for manned operation in the air by a single occupant.
    b. 103.1 (b) Is used or intended to be used for recreation or sport purposes only.
    c. 103.21 No person may operate an ultralight vehicle except by visual reference with the surface.
3. The extent of relief you seek, and the reason you seek the relief
    a. 103.1 (a) Request the operation of the air vehicle as an UAS. By definition it will not be manned.
    b. 103.1 (b) Request that the UAS be allowed to be used for commercial purposes. It will be used for aerial photograph, agriculture field inspection and aerial property monitoring.
    c. 103.21 Request that the vehicle be operated by visual reference “from the ground ” not “with the ground”. This will be accomplished by maintaining maximum altitude and distance from the PIC of 300ft.
4. The reasons why granting your request would be in the public interest; that is, how it would benefit the public as a whole.
    a. By designating small UAS as Ultralight Aircraft and setting below requirements for an exemption to the probation for commercial use, public safety will be greatly enhanced. With the low cost of these devices many are in the process of using them in a non-regulated none tracked manner. In addition to the exemption list above the PIC will follow the below requirements.
        i. 50 hours of flight time prior to use for commercial purposes. The hours will be documented on the standard FAA Log book.
        ii. Operator currently holds an FAA Private Pilot’s License (#2860585).
    b. The above stipulations along with the designation of this UAS as Ultralight will enhance public safety in the following ways.
        i. Aircraft and PIC will be registered and connected to allow for accountability.
        ii. Presently, with their low cost of these devices may people are operating these UASs in a non-regulated manner. By providing a way for the Aircraft to be registered to a Specific PIC, if there is an incident the

aircraft can be traced back to an individual. I will notify the FAA if an aircraft is added or removed from the fleet.

1. UAS, Phantom 2 vision plus s/n PH645396082 v3
2. PIC Edward Juden FAA License: 2860585

iii. By matching the UAS to the PIC the FAA can review the log book to ensure that the PIC has spent the time with the particular aircraft to ensure safety.

iv. Although the UAS has a home function as a redundant safety feature, if the Aircraft should malfunction and not respond to the transmitter or home function, the PIC will notify the area controlling station in the same manner as an accidently released tethered balloon. Once an Aircraft is found the Serial number of the Aircraft can confirm the PIC responsible for it.

c. By designating the Aircraft as an Ultralight the rules and regulation for its operation are already established for safe operation in public airspace.
   i. The Aircraft cannot operate above a congested gathering nor can it operate above congested parts of a town or city.
   ii. The Aircraft can only operate within the hours of daylight, unless it has the applicable markings and safety light.
   iii. The Aircraft can only operate in class G airspace. This will keep the aircraft away from other air traffic.
   iv. The aircraft can only operate in airspace as stipulated by the cloud cover requirements within the proper 103. Ensuring safe operation around other aircraft.
d. As stipulated in the application I am asking for an exception stating that the UAS can only operate less than 300 feet AGL. Although this more restrictive then the Ultralight requirements it will insure a clear line of sight connection between the PIC and the UAS.
e. Aircraft will operate in airspace controlled by emergency personnel only when PIC is in direct voice contact with Incident Commander or Designee.
f. Designating the UAS as an Ultralight, the following regulations will not apply however public safety will not be reduced by the actions listed and will be enhance by not being overly burdensome to the operator and increasing compliance.
   i. As stipulated in 103.7 (c) An "N" number will not be required. The "N" number is used for Aircraft identification. Limiting the Aircraft to Class G Airspace or Airspace controlled by emergency personnel under Incident commander control eliminated the need for visual identification of an aircraft within an Airport control. The requirement of the "N" number for accident identification is fulfilled by the registration of the Aircraft and the PIC.

ii. As stipulated in 103.7 (b) An Air worthiness certificate is not required and due the size of the drone. Similar to other Ultralight aircraft, the safety hazard represented by the Aircraft is limited. Also the requirement the aircraft will operate only in line of sight of the PIC and not over congested areas further reduce any hazard. Mandating that the PIC has a $500 thousand dollar insurance policy ensure that proper restitution can be made if an incident does occur. Public safety is improved by reducing the burden on operator to ensure proper registration and ensuring that the PIC is properly insured and trained.

iii. As stipulated in 103.7 (a) a pilot certificate is not required. Due to the differences in flying a UAS and operating a manned aircraft for personal of commercial use, little is gained from requiring one of these certifications for UAS operation. Passing the practical test and showing required logged time in a manned aircraft will not increase the safety of the drone operation. This being said, the part of the pilot certification that would be applicable is the knowledge and ground school portion of the certification. This part of the certification would give the PIC an understanding of the aircraft operations that the UAS will share NAS with and the importance of staying within its operating parameters. The Knowledge test is also only good for two years and will have to be renewed insuring recertification of a UAS operating permit. Public safety will also be enhanced by requiring that an FAA log be filled out showing knowledge of Specific UAS operation. The above will ensure public safety while not placing a burden on UAS operators that may encourage unregistered operation.

g. My request for an exemption differs from the majority of request that I have read but has many advantages.

i. Starting with the stipulating that these small drones are Ultralight aircraft, many of the rules and regulations necessary to keep a separation from other manned aircraft are already in effect.

1. No person may operate an ultralight vehicle except between the hours of sunrise and sunset.
2. Notwithstanding paragraph (1) of this section, ultralight vehicles may be operated during the twilight periods 30 minutes before official sunrise and 30 minutes after official sunset or, in Alaska, during the period of civil twilight as defined in the Air Almanac, if:
    a. The vehicle is equipped with an operating anti-collision light visible for at least 3 statute miles; and
    b. All operations are conducted in uncontrolled airspace.

3. Each person operating an ultralight vehicle shall maintain vigilance so as to see and avoid aircraft and shall yield the right-of-way to all aircraft.
4. No person may operate an ultralight vehicle in a manner that creates a collision hazard with respect to any aircraft
5. No person may operate an ultralight vehicle over any congested area of a city, town, or settlement, or over any open air assembly of persons.
6. UAS can only be operated in Class G airspace
    a. No person may operate an ultralight vehicle within Class A, Class B, Class C, or Class D airspace or within the lateral boundaries of the surface area of Class E airspace designated for an airport unless that person has prior authorization from the ATC facility having jurisdiction over that airspace
7. Any person operating an ultralight vehicle under this part shall, upon request, allow the Administrator, or his designee, to inspect the vehicle to determine the applicability of this part.
8. No person may operate an ultralight vehicle in prohibited or restricted areas unless that person has permission from the using or controlling agency, as appropriate.
9. No person may operate an ultralight vehicle in areas designated in a Notice to Airmen under §91.137, §91.138, §91.141, §91.143 or §91.145 of this chapter, unless authorized by:
    a. Air Traffic Control (ATC); or
    b. A Flight Standards Certificate of Waiver or Authorization issued for the demonstration or event.
10. The pilot or operator of an ultralight vehicle must, upon request of the Administrator, furnish satisfactory evidence that the vehicle is subject only to the provisions of this part.
11. No person may operate any ultralight vehicle in a manner that creates a hazard to other persons or property.
12. No person may allow an object to be dropped from an ultralight vehicle if such action creates a hazard to other persons or property.
13. No person may conduct operations that require a deviation from this part except under a written waiver issued by the Administrator. This section mandates that several aspect of Section 107 be waived ensuring proper registration of UAS being used in a commercial enterprise and that the PIC is properly experienced.

ii. Stipulating these small UAS as ultralight aircraft an Airman certification is not required. By stipulating that the knowledge test portion of the air certification is enforced, all operators will be required to understand the requirement to keep UAS away from manned aircraft and the rules in which they will operate ensuring public safety.
iii. Mandating document hours on the specific UAS prior to commercial use will ensure public safety by ensuring the PIC is proficient a particular airframe. This will also mandate the proper documentation to prove this proficiency.

h. There is no request to exercise the privileges of your exemption outside the United States.

Respectfully submitted

Edward Juden