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

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

September 4, 2015

Exemption No. 12770
Regulatory Docket No. FAA−2015−2558

Mr. Jordan Senecal
2960 Ashton Pointe Circle
Dacula, GA 30019

Dear Mr. Senecal:

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.

By letter dated June 15, 2015, you petitioned the Federal Aviation Administration (FAA) for an exemption. You requested to operate an unmanned aircraft system (UAS) to conduct aerial photography and videography.

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 are the DJI Phantom 3 and DJI Inspire 1.

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. Jordan Senecal 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.

**Conditions and Limitations**

In this grant of exemption, Mr. Jordan Senecal is hereafter referred to as the operator.

[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.

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 3 and DJI Inspire 1 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 September 30, 2017, unless sooner superseded or rescinded.

Sincerely,

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

Enclosures

## U.S. Department of Transportation
## Federal Aviation Administration
## Washington, DC

June 15, 2015

## Petitioner

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**Jordan Senecal will be providing clients with high quality imaging for a variety of commercial, public, and residential uses. He is a current licensed private pilot with hours of flying experience and is seeking an exemption from these specific requirements of Title 14 C.F.R.:**

I. 61.113(a) and (b)
II. 91.119(b) and (c)
III. 91.121
IV. 91.151(a)
V. 91.405(a)
VI. 91.407(a)(1)
VII. 91.409(a)(1) and (2)
VIII. 91.417(a) and (b)

## Definitions

| | | |
|---|---|---|
| I. | AGL | Above Ground Level |
| II. | ATC | Air Traffic Control |
| III. | COA | Certificate of Authorization |
| IV. | FAA | Federal Aviation Administration |
| V. | FAR | Federal Aviation Regulation |
| VI. | GPS | Global Positioning System |
| VII. | NAS | National Airspace System |
| VIII. | PIC | Pilot in Command |
| IX. | UA | Unmanned Aircraft |
| X. | sUAS | Small Unmanned Aerial System |
| XI. | VFR | Visual Flight Rules |
| XII. | VLOS | Visual Line of Site |

## Summary

In the instance of granting exemption, Jordan Senecal will be operating the sUAS in order to fulfill contracted obligations, such as: aerial photography and videography for real estate agents, appraisers, property managers, general contractors; solar panel installation technicians; agriculturists; utility inspections (only where safe flight is attainable); chambers of commerce and associated businesses; wildlife conservation organizations; public departments; all other institution requiring filmography (safe flight permitting)

## Aircraft

### I. DJI Phantom 3

| | |
|---|---|
| A. Weight (Including Battery and Propellers) | 2.82 lbs |
| B. Diagonal Size (Including Propellers) | 23.23 in |
| C. Max Ascent Speed | 11.2 mph |
| D. Max Descent Speed | 6.7 mph |
| E. Max Flight Time | ~ 23 minutes |
| F. Remote Controller Operating Frequency | 2.400 GHz - 2.483 GHz |
| G. Auto-Takeoff | Rises to a pre-set height and will hover in place until directed where to go |
| H. Auto-Return Home | Remembers the exact spot it took off from to enable a tap of a button to return back home |
| I. Low Battery Failsafe | If the flight battery is run running low or the Phantom 3 loses connection with the remote it will automatically return back home |

**II. DJI Inspire 1**

| | |
|---|---|
| A. Weight (Including Battery and Propellers) | 6.47 lbs |
| B. Diagonal Size (Including Propellers) | 22.87 in |
| C. Max Ascent Speed | 11.2 mph |
| D. Max Descent Speed | 9 mph |
| E. Max Flight Time | ~ 18 minutes |
| F. Remote Controller Operating Frequency | 2.400 GHz - 2.483 GHz<br>5.725 GHz - 5.825 GHz |
| G. Auto-Takeoff | Rises to a pre-set height and will hover in place until directed where to go |
| H. Auto-Return Home | Remembers the exact spot it took off from to enable a tap of a button to return back home |
| I. Low Battery Failsafe | If the flight battery is run running low or the Inspire 1 loses connection with the remote it will automatically return back home |

## Specific Sections of C.F.R From Which Jordan Senecal Seeks Exemption

### I. Section 61.113(a) and (b) - Private Pilot Privileges and Limitations

Section 61.113 states that no person who holds a private pilot certificate may act as pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as pilot in command of an aircraft. The sUAS will not carry a pilot or passengers. Then the stated operations can achieve the equivalent level of safety by requiring the PIC operating the aircraft to have completed FAA Private Pilot Ground school instruction and passed the FAA Private Pilot written exam to operate these sUAS. These sUAS are not capable of carrying a pilot or passengers, therefore distinguishing them as remotely controlled vehicles. The

area of operation is controlled and restricted providing a sound level of safety referenced from the operations manual. The risk associated with the operation of a UAS are greatly reduced with a private pilot acting as PIC thus exceeding the present level of safety achieved by section 61.113.

## II. Section 91.119 - Minimum Safe Altitudes

Section 91.119 states persons may operate a helicopter at less than the minimums prescribed in paragraph (b) or (c) of this section, provided each person operating the helicopter complies with any routes or altitudes specifically prescribed for helicopters by the FAA. The sUAS meets this criteria as a helicopter and requests the ability to operate at altitudes up to 400’ AGL. Only in accordance with pre-obtained consent will the sUAS operate while also maintaining an altitude less than 400’ AGL. For comparison with traditional aircraft and rotorcraft the sUAS weighs less than 10lbs, while also preventing potential risks associated with flammable fuel. Lastly the 400’ AGL ceiling limits any ability for the sUAS to interfere with conventional aircraft operating at or above 500’ AGL.

## III. Section 91.121 - Altimeter Settings

Section 91.121 states each person operating an aircraft shall maintain the cruising altitude or flight level of that aircraft, as the case may be, by reference to an altimeter that is set, when operating below 18,000 feet MSL, to the current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft. In the case of an aircraft not equipped with a radio, the elevation of the departure airport or an appropriate altimeter setting available before departure. The sUAS will reference its altitude based on GPS and will be restricted to a 400’ AGL ceiling. The PIC will also verify GPS elevation from multiple ground based sources prior to takeoff.

## IV. Section 91.151 - Fuel Requirements for Flight in VFR conditions

Section 91.151 states no person may begin a flight in a rotorcraft under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed, to fly after that for at least 20 minutes. The sUAS battery powered operational flight time is not able to incorporate a 20 minute reserve window following successful first point of intended landing due to current battery capacity limitations. In order to provide adequate reserve power for return landing the sUAS will abide by a 12 minute flight time or 25% of remaining battery power, whichever happens first.

**V. Section 91.405(a), 91.407(a)(1), 91.409(a)(1) & (2), and 91.417(a) & (b)**

These sections only apply to aircraft with an airworthiness certificate, Jordan Senecal requests exemption from these sections because the DJI Phantom 3 and Inspire 1 do not require airworthiness certificates. Both sUAS are in accordance with FMRA Section 333 for operation, absent an airworthiness certificate. In order to insure proper maintenance the operations manual will be cited for necessary corrective measures. In addition, the PIC is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition, and any sUAS conducted maintenance will be documented for the life of the aircrafts.

## Public Interest

- Real estate agents will be able to set their listings apart with a unique perspective only available from sUAS photographic equipment, therefore increasing the prospect of meeting or exceeding the asking price.
- Property managers and contractors will have the ability to survey their property for anomalies while preventing human endangerment due to hazardous conditions.
- Solar panel technicians can safely inspect potential installation locations without putting themselves in high elevation and sloping circumstances.
- Agriculturists will have the ability to survey their land in a more timely manner and better document the condition of their property.
- Marketing firms and other businesses would use unique aerial photography and panographic video to promote marketing campaigns and increase revenue.
- Search and rescue entities could utilize the sUAS to help quickly aid in finding the location of person(s) while providing a better vantage point in closer quarters.

## Public Safety

- Both sUAS will reduce air and noise pollution do to the aircraft being powered by a battery and brushless electric motors.
- These small aircraft create less potential for harm, should an emergency situation occur, thanks to their size and weight.
- Furthermore the lack of combustible fuel also significantly decreases their chances of producing harm.

## Conclusion

Based on the criteria provided under the FMRA Section 333, Jordan Senecal requests that the FAA grants him exemption from 14 C.F.R Sections 61.113(a) & (b), 91.119(b) and (c), 91.121, 91.151(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) & (a)(2), and 91.417(a) & (b) in order to conduct contracted commercial sUAS operations using the DJI Phantom 3 and Inspire 1 for a wide range of industries and applications.

Kind Regards,

Jordan Senecal