



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

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

August 31, 2015

Exemption No. 12682  
Regulatory Docket No. FAA-2015-2494

Mr. Jared L. Oleson  
5865 93rd Avenue  
Pinellas Park, FL 33782

Dear Mr. Oleson:

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 letters posted to the public docket on June 26, 2015, and July 24, 2015, you petitioned the Federal Aviation Administration (FAA) for an exemption. You requested to operate an unmanned aircraft system (UAS) to conduct real estate and construction photography and videography services.

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 Professional and DJI Inspire 1.

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. 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 the requested 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<sup>1</sup>. 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. Jared L. Oleson 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. Jared L. Oleson is hereafter referred to as the operator.

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<sup>1</sup> 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 Professional 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.nts.gov](http://www.nts.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

## Jared Oleson - Exemption/Rulemaking

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### Content

I request section 333 exemption for the purpose of Aerial Photography business, and or agricultural assessment as needed. As a hobbyist flying for 11 years and always maintaining safe practices, line of sight flying, proper maintenance and repair checklists, this ruling creates financial costs and rules counter productive to my business needs. All photography I do is LOS, and performed under 400' AGL. The aircraft I use have GPS guidance, and "return to home" safety feature installed. My primary business use would be real estate photography, home inspections, and general "for sale" photography in nature. The use of my UAV is less costly and MUCH safer than a full size counterpart (helicopter). The cost to consumer is much less. I would average \$100 fee, vs. a \$1000 fee in a full size aircraft to perform the same function. The use of my UAV also prevents a possible danger to a full size aircraft pilot. My flights would consist of using either a DJI Phantom quadcopter, or a DJI Inspire 1 quadcopter dependent on the needs of the client. This is my request for exemption.

ID: FAA-2015-2494-0001

### Document Information

**Date Posted:**

Jun 26, 2015

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### Submitter Information

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### Comments

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### Docket Information

*This document is contained in*  
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To whom it may concern,

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the "Reform Act"), P .L. 112-95, "Special Rules for Certain Unmanned Aircraft Systems" and 14 C.F.R. Part 11, I, Jared L. Oleson, providing real estate and construction photography and videography services, seeks an exemption from the Federal Aviation Regulations ("FARs") and listed below:

14 C.F.R. Part 21  
14 C.F.R. 45.23  
14 C.F.R. 45.29  
14 C.F.R. 61.3  
14 C.F.R. 61.23  
14 C.F.R. 61.113(a) & (b)  
14 C.F.R. 61.133(a)  
14 C.F.R. 91.7(a)  
14 C.F.R. 91.9  
14 C.F.R. 91.109(a)  
14 C.F.R. 91.119  
14 C.F.R. 91.121  
14 C.F.R. 91.151(a)  
14 C.F.R. 91.203  
14 C.F.R. Subpart E (91.401 - 91.417)

The requested exemption would authorize commercial operations using the UAV for real estate and construction photography and videography. These operations will be subject to strict operating conditions defined by the UAV manufacturer's standards and procedures in order to ensure at least an equivalent level of safety to currently authorized operations using manned aircrafts.

Upon receipt of the exemption contemplated herein, I shall, if required, obtain a Certificate of Waiver or Authorization (COA) form the FAA Air Traffic Organization prior to conducting operation(s) in the NAS.

#### **Proposed Use**

The main use of this UAS would be taking photos and videos for live sporting events and real estate photography. The UAS systems that I plan to use is a DJI PHANTOM 3 PROFESSIONAL and or a DJI INSPIRE 1 and will be referenced in this document.

1. The safe operation to the NAS and/or persons and/or property will be kept to a minimum by always flying the UAS within visual eye contact, less than 400 ft above ground and never directly above persons or public places. The orientation of flights will be such that the pilot in command (PIC) always has a visual on the rear mounted LED flight Indicator. Additional safety features on the DJI PHANTOM 3 PROFESSIONAL and DJI INSPIRE 1 include, return to home, low voltage, enhanced failsafe along with operating in the less populated 2.4-2.483 GHZ frequency range.
2. Pre-flight inspection would be checking battery condition/level in both the transmitter and UAS. The binding/link feature will not let the UAS start if communication is not established. A check for powerlines, antennas and other overhead objects would be performed. Wind conditions would be monitored and be a factor for flying.
3. The radio frequency of the DJI PHANTOM 3 PROFESSIONAL and DJI INSPIRE 1 are in the 2.4 - 2.483 GHZ range. The maximum take-off weight less than 1200g. Max Ascent speed is 5 m/s,

and the Max Descent speed it 3 m/s. The Maximum flight Velocity is 16 m/s. The cruise speed is 5 m/s.

4. The PIC will be only Jared L. Oleson who has been an RC Aircraft hobbyist for 10+ years. Testing, updating and programming the DJI PHANTOM 3 PROFESSIONAL and or DJI INSPIRE 1 firmware would be done on a monthly schedule
5. The intended use of this DJI PHANTOM 3 PROFESSIONAL is to expand my independent contracting business by offering aerial photography to realtors, builders, and contractors.
6. All photo flights for hire would have the date, time, GPS coordinates along with the camera metadata recorded on a hard drive and backed up to cloud storage services. This data would be kept readily available for a period of 1 year after each aerial flight for hire.
7. The proposed flight time will be the lesser of 30 minutes or the time-duration of the UAV battery.

If planned operation requires, I will also file for a Certificate of Waiver or Authorization (COA). In the event that a COA request is not granted the petitioner would ask that this request for exemption still be granted with a conditional use. The DJI PHANTOM 3 PROFESSIONAL and or DJI INSPIRE 1 will never be flown in the flight path of manned aircraft. The first condition listed to always keep visual eye contact on the 22mm LED flight indicator is probably the most important. My main objective is to offer aerial real estate at a competitive rate for the general public in the safest way possible.

**Public Interest:**

Granting my request would be in public interest by giving an opportunity for real estate photographers to offer safer and more competitively priced aerial photography to the general public.

This exemption would not adversely affect the safety of the general public due to the size, weight, and keeping of the UAS in visual sight. The safety mechanisms of the herein described UAS provide further protections when the PIC is no longer in control of the UAS. In comparisons to aerial photography from manned aircraft, low altitude photography from a UAS would be safer and have less of an environmental impact.

Thank you,

Jared L. Oleson  
5865 93<sup>rd</sup> Ave  
Pinellas Park FL, 33782

**EXEMPTION REQUEST AND EQUIVALENT LEVEL OF SAFETY SHOWINGS UNDER APPLICABLE RULES  
SUBJECT TO EXEMPTION**

Jared L. Oleson requests an exemption from the following regulations as well as any additional regulations that may technically apply to the operation of the DJI Phantom 3 Professional and DJI Inspire 1 ("UAV"):

**14 C.F.R. Part 21, Subpart H: Airworthiness Certificates 14 CFR § 91.203**

Section 91.203 requires all civil aircraft to have a certificate of airworthiness. Part 21, Subpart H, entitled Airworthiness Certificates, establishes the procedural requirements for the issuance of airworthiness

certificates as required by FAR§ 91.203(a). Given the size of the UAV, they are very light weight and the limited operating area associated with their utilization, it is unnecessary to go through the certificate of airworthiness process under Part 21 Subpart H in order to achieve or exceed current safety levels.

Such an exemption meets the requirements of an equivalent level of safety under Part 11 and Section 333 of the Reform Act. The Federal Aviation Act and Section 333 of the Reform Act both authorize the FAA to exempt aircraft from the requirement for an airworthiness certificate, upon consideration of the size, weight, speed, operational capability, and proximity to airports and populated areas of the UAS involved. An analysis of these different criteria demonstrates that the UAV operated without an airworthiness certificate, under the conditions proposed in that exemption, will be at least as safe, or safer, than a conventional aircraft with an airworthiness certificate.

#### **14 C.F.R. § 45.23 & 14 C.F.R. § 45.29: Display of marks; size of marks**

These regulations provide that each aircraft must display "N" and the aircraft's registration number in letters at least 3 inches high. Additionally, the aircraft must display the word "EXPERIMENTAL" in letters at least 2 inches high near the entrance to the cabin, cockpit, or pilot station. Given the size of the UAVs, this requirement is impossible to match.

#### **14. C.F.R. §61.23: Medical certificates: Requirement and duration**

Regulations provide that a person:

(1) Must hold a first-class medical certificate:

- When exercising the pilot-in-command privileges of an airline transport pilot certificate;
- When exercising the second-in-command privileges of an airline transport pilot certificate in a flag or supplemental operation in part 121 of this chapter that requires three or more pilots; or
- When serving as a required pilot flight crewmember in an operation conducted under part 121 of this chapter if the pilot has reached his or her 60th birthday.

(2) Must hold at least a second class medical certificate when exercising:

- Second-in-command privileges of an airline transport pilot certificate in part 121 of this chapter (other than operations specified in paragraph (a)( 1 )(ii) of this section); or
- Privileges of a commercial pilot certificate

Given the size of the UAV, its structure, the limited flight area, and the safety features integrated in the autopilot (among others a flight termination system), Jared L. Oleson believes that an Equivalent Level of Safety can be reached if the operator has a valid driver's license.

#### **14 C.F.R. § 61.3: Requirements for certificates, ratings and authorizations**

#### **14 C.F.R. § 61.113(a) & (b); 61.133(a): Private Pilot Privileges and Limitations; Pilot in Command; Commercial Pilot Privileges and Limitations**

The regulation provides that no person may serve as a required pilot flight crewmember of a civil aircraft of the United States, unless that person:

- (1) Has a pilot certificate or special purpose pilot authorization issued under this part in that person's physical possession or readily accessible in the aircraft when exercising the privileges of

that pilot certificate or authorization. However, when the aircraft is operated within a foreign country, a pilot license issued by that country may be used. The regulation provides also that no person that holds a private pilot certificate may act as pilot in command of an aircraft for compensation or hire. Subparagraph (b) allows a private pilot to act as pilot in command of an aircraft in connection with any business or employment if:

- (1) The flight is only incidental to that business or employment;
- (3) The aircraft does not carry passengers or property for compensation or hire.

Given the safety features of the UAV, Jared L. Oleson proposes that operators of the UAV should not be required to hold a commercial or private pilot certification. The equivalent level of safety will be achieved by having an operator trained UAV manufacturer, and using the integrated features of the aircraft to maintain a high level of safety during the different missions.

#### **14 C.F.R. § 91.7(a): Civil aircraft airworthiness**

Subpart H, entitled Airworthiness Certificates, establishes the procedural requirements for the issuance of airworthiness certificates as required by FAR §91.203 (a) (1). Given the size and limited operating area associated with the aircraft to be utilized by the Applicant, an exemption from Part 21 Subpart H meets the requirements of an equivalent level of safety under Part 11 and Section 333 of the Reform Act. The Federal Aviation Act (49 U.S.C. §44701 (f)) and Section 333 of the Reform Act both authorize the FAA to exempt aircraft from the requirement for an airworthiness certificate, upon consideration of the size, weight, speed, operational capability, and proximity to airports and populated areas of the particular UAS. In all cases, an analysis of these criteria demonstrates that the UAS operated without an airworthiness certificate, in the restricted environment and under the conditions proposed will be at least as safe, or safer, than a conventional aircraft (fixed wing or rotorcraft) operating with an airworthiness certificate without the restrictions and conditions proposed.

#### **14 C.F.R. § 91.9: Civil aircraft flight manual, marking, and placard requirements**

The equivalent level of safety will be achieved by keeping a hard copy of the user manual in In close proximity to the operator.

The equivalent level of safety will be provided by having the UAV marked on its fuselage as required by §45.29 (f) where the pilot, observer and others working with the UAV will see the identification of the UAS as "Experimental." The FAA has issued the following exemptions to this regulation to Exemptions Nos. 10700, 8738, 10167 and 10167A.

#### **14 C.F.R. § 91.109(a): Flight Instruction**

The regulation provides that "No person may operate a civil aircraft that is being used for flight instruction unless that aircraft has fully functioning dual controls."

The equivalent level of safety during the in-flight training will be achieved by the manufacturer or affiliate providing the training as described in the manufacturer's training program and through the use of experienced and qualified instructors familiar with the UAV.

#### **14 C.F.R. § 91.119: Minimum Safe Altitudes**

Section 91.119 establishes safe altitudes for operation of civil aircraft. The exemption requests authority to operate at altitudes up to 400 AGL. It will however be operated in a restricted area with security perimeter, where buildings and people will not be exposed to operations without their preobtained consent.

The equivalent level of safety will be achieved given the size, weight, speed of the UAS as well as the location where it is operated. No flight will be taken without the permission of the property owner or local officials.

Compared to flight operations with aircraft weighing far more than those proposed herein and the lack of flammable fuel, any risk associated with these operations is far less than those presently presented with conventional aircraft.

#### **14 C.F.R. 91.121: Altimeter settings**

This regulation requires each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set " ... to the elevation of the departure airport or an appropriate altimeter setting available before departure." As the UAV may not have a barometric altimeter, but instead a GPS altitude read out, an exemption is requested.

An equivalent level of safety will be achieved by the operator confirming the altitude of the launch site shown on the GPS altitude indicator before flight.

#### **14 C.F.R. § 91.151(a): Fuel Requirements for Flight in VFR Conditions**

The regulation provides that no person may begin a flight in an airplane under day-VFR conditions unless there is enough fuel to fly to the first point of intended landing and to fly after that for at least 30 minutes. As the UAVs are electric-powered, this requirement is inapplicable. In any event, given the contemplated operations, Jared L. Oleson believes that an equivalent level of safety is already achieved with the specific procedure preventing the UAVs accepting a take-off order if the battery level is below a given value. Moreover, the manufacturers have integrated low and critical battery level warnings and implemented a "return to home" action in these situations.

#### **14 C.F.R. § 91.203 (a) & (b): Carrying Civil Aircraft Certification and Registration**

This regulation provides as follows:

- No person may operate a civil aircraft unless it has an appropriate and current airworthiness certificate.
- No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under §91. 715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

An equivalent level of safety will be achieved by keeping these documents at the ground control point where the pilot flying the UAV will have immediate access to them, to the extent they are applicable to such UAV. The FAA has issued numerous exemptions to this regulation. A representative sample of other exceptions includes Exemption Nos. 9565, 9665, 9789, 9789A, 9797, 9797A, 9816A, and 10700.

#### **14 C.F.R. Subpart E (91.401 - 91.417): Maintenance, Preventive Maintenance, and Alterations**

The regulation provides that the operator is primarily responsible for maintaining the aircraft in an airworthy condition, including compliance with Parts 39 and 43. Paragraphs 91 A07 and 91 .409 require the aircraft to be "approved for return to service by a person authorized under 43.7" after maintenance and inspection. Section 91.409 requires an annual inspection for the issuance of an airworthiness certificate. Section 91 A 17 requires the owner or operator to keep records showing certain maintenance work that has been accomplished by certificated mechanics, under Part 43, or licensed pilots and records of approval of the aircraft for return to service.

Jared L. Oleson proposes that the maintenance of the UAVs will be accomplished by himself, as the owner of the UAVs, according to the manufacturer supplied user manual.

Given that these section and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply to the applicant. Maintenance will be accomplished by the operator pursuant to the flight manual and operating handbook as referenced herein. An equivalent level of safety will be achieved because these small UAVs are very limited in size and will carry a small payload and operate only in restricted areas for limited periods of time. If mechanical issues arise the UAV can land immediately and will be operating from no higher than 400 feet AGL. The operator will ensure that the UAS is in working order prior to initiating flight, perform required maintenance, and keep a log of any maintenance performed. Moreover, the operator is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.