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

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

July 27, 2015

Exemption No. 12149
Regulatory Docket No. FAA–2015–1635

Ms. Kimberly Ann Oberst
dba KEO Drone Survey Systems
18870 Painted Leaf Court
Jupiter, FL 33458

Dear Ms. Oberst:

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 posted to the public docket on May 13, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of KEO Drone Survey Systems (hereinafter petitioner or operator) for an exemption. The petitioner 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 2 Vision Plus and DJI Phantom 3.

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, KEO Drone Survey Systems 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, KEO Drone Survey Systems 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 2 Vision Plus and DJI Phantom 3 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 July 31, 2017, unless sooner superseded or rescinded.

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

Enclosures

U.S. Department of Transportation
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RE: Exemption Request Section 333 of the **FAA Reform Act of the Federal Aviation Regulations** from 14 CFR 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); 91.417(a)&(b)

Dear Sir or Maam,

The petition is submitted **by Kimberly Ann Oberst, DBA, KEO Drone Survey Systems**, who will hereafter be referred to as the "petitioner." The majority of this request for exemption will be based on prior **Exemption No. 11138** issued to **Mr. Douglas Trudeau, Realtor**, issued by the **Federal Aviation Administration** on **January 6, 2015, Regulatory Docket No. FAA-2014-0481**. My request for exemption will utilize the same make and model of UAS. I plan to perform the same type of operations, with certain additions to be specified, as requested in Exemption No. 11138.

It is the request of the petitioner for exemptions listed above in order to legally and safely operate the **DJI Phantom 2 Vision Plus UAS**, in the National Airspace System, for the purpose of Unmanned Aerial Photography and Videography for the real estate, construction, and utilities industries for commercial gain and enhancement of Public awareness of UAS operation, and finally enhanced safety for both the General Public and Flight Crews.

The petitioner, **Kimbely Ann Oberst**, is a FAA certificated **Commercial Pilot Single and Multi-Engine Instrument Airplane**; **CFII-(Rotorcraft).** The petitioner has over 2500 flight and FAA level D simulator hours, with the majority (90%) of hours in rotorcraft. The petitioner has experience with RC simulation, and simulation of normal procedures/emergency procedures for rotorcraft while working as an academic and ground instructor at Flight Saftey International. The petitioner has experience as an Air Force Helicopter Instructor Pilot with experience in the UH-1N Huey and HH60G Pavehawk helicopters. She worked in training and safety capacities while serving Active Duty for 10 years, and is currently the lead Blackhawk S70 instructor at Flight Safety West Palm Beach Facility. She is also currently a Lieutenant Colonel serving in the Air Force Reserves.

It is the petitioners position that the operations for which exemption is requested are safer and more cost effective than using manned aircraft, and for those reasons are in the Public Interest; and would be of benefit in identifying areas of operation that may need additional oversight as well as raising public awareness and interest in this rapidly growing facet of aviation.
(**Reference Exemption No. 11138)**

The petitioner will outline in this document:

1. Request for exemptions by Part and Subpart and how the UAS is to be used
2. Petitioners protocols and procedures for operations
3. Location of Operation and Request for relief from Airport Proximity Limitation
4. The Unmanned Aircraft System (UAS) and Frequencies used
5. The Public Interest

1. Requests for exemption by Part and Subpart and how the UAS is to be used

14 CFR 91.7(A)
Prohibits the operation of an aircraft without an airworthiness certificate. Petitioner requests exemption based on previous **Exemption No. 11138**. The FAA has ruled that this make and model of aircraft (UAS) does not require an airworthiness certificate.
14 CFR 91.119(C)
States that no person may operate an aircraft below the following altitudes: *over other than congested areas,* an altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

The petitioner will never operate any UAS over an altitude of 400 AGL. The majority of the operations proposed will operate around 100 to 300 feet AGL as this usually provides the best angle of capture for the type of photography and videography operations proposed. The UAS will be used for commercial building and residence surveys for engineering and construction company inspections. The UAS may be used for real estate surveys or other commercial surveys where in flight photos or videos are requested.

The UAS utilized for this exemption is of exceptionally light weight and is not capable of speeds over 30 knots. The UAS is equipped with GPS guided auto pilot with a return home function in case loss of control by the PIC and is powered by sealed batteries thereby reducing the chance of post impact fire to nearly zero.

There will be cases when the 500 foot to property will need to be exempted. (Example: Aerial Video of a 2 story home roof to determine and/or document extent of storm damage.) In this type of operation every assurance will be made to keep persons outside of a reasonable, safe, clear area of operations and will only be conducted with the express permission of the property owner. See protocols and procedures section.

The petitioner will implement procedures and policies to ensure that any person in the general vicinity of operations will be aware of such operations and ensure that all non-essential personnel are cleared of the area of operations. See **Protocols and procedures Section 3.**
The petitioner therefore requests relief in part from **14 CFR 91.119(C)**
14 CFR 91.121
Altimeter Settings.
The petitioner requests relief from **91.121** for the following reason. The UAS is equipped with GPS derived altitude capability, however due to the limited altitude requested in this exemption, the FAA has previously granted Exemption for these types of operations. **Reference Exemption No. 11138**

14 CFR 91.151(a)
No person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) unless there is enough fuel to fly to the first point of intended landing and, assuming normal cruise speeds
(a)(1)During the day to fly for at least 30 minutes.
The petitioner requests relief from **91.151(a)** due to the fact that the UAS is equipped with a battery and percentage indicator system. The UAS has a flight capability on full charge of approximately 20 to 25 minutes depending on camera usage and other variables. The petitioner has established that the maximum flight will be 10 minutes on a fully charged battery. This constitutes landing with approximately 50 percent fuel remaining. The petitioner believes that this follows the spirit and intent of the rule with a great margin of safety.
No UAS operations will be conducted at night, as defined by Federal Aviation Regulations.
14 CFR 91.405(a)
Maintenance required;
The petitioner requests relief in part from **91.405(a)(1)** based on the **Protocols and Procedures Section** on **Maintenance and Maintenance Records**. **Also reference Exemption No. 11138**

14 CFR 91.407(a)(1)
Operation after maintenance, preventive maintenance, rebuilding, or alteration;
The petitioner requests relief from 91.407(a)(1) based on the Protocols and Procedures Section on Maintenance, Return to service after maintenance, and Maintenance records. Reference Exemption No. 11138
14 CFR 91.409(a)(1)(2)
Inspections;
The petitioner requests relief from 91.409(a)(1)(2) based on the Protocols and Procedures Section on Inspections. Reference Exemption No. 11138
14 CFR 91.417(a)(b)
Maintenance records;
The petitioner requests relief from 91.417(a)(b) based on the Protocols and Procedures Section on Maintenance records.

KEO Drone Survey Systems

2. Protocols and Procedures for UAS operations.

A. Preflight
B. Area Security
C. Limitations of Operations
D. Airworthiness
E. Maintenance and Records
F. Pilot in Command Requirements
G. Visual Observer and Requirements
H. Reporting of Incidents and Accidents

A. Preflight Inspection of UAS

(1). Preflight of Unmanned Aerial System will follow the instructions on in the DJI instruction and User Manual. The Pilot in Command will certify that a preflight inspection has been accomplished with the date and time and signature in UAS logbook. The preflight shall include the aircraft, transmitter, and batteries, motors, rotors, landing gear, and camera and gimbal mount. As a part of the preflight the Pilot in Command will assure that weather conditions, batteries, area security, and any other information essential to safe operation has been obtained.

B. Area Security

(1). The PIC of the UAS will ensure that the operational area for the purposes of UAS flight shall be cleared of all nonessential persons at all times the UAS is in flight. Additionally all nonessential persons shall be required to remain clear of the operations area by a minimum distance of 150 feet during operations. PIC shall ensure that clearly marked signs are posted at all ingress\egress points to the operations areas. These signs will be of white background with red lettering stating the following: “Unmanned aircraft operations underway. Please remain clear of this area during operations.”
(2). In the event of a breach of nonessential persons into the operations area during flight of UAS, the PIC shall immediately terminate flight operations until such time as the area can be cleared of such persons.
(3). The UAS area of operation is defined as the Horizontal flight path(s) of the UAS as well as the Vertical flight path and Maximum altitude to be reached. Additionally the area between the UAS’s current position and its Home location is also considered operational area as it will proceed direct to its home location in the eventual of loss of ground control.
All nonessential persons will not be allowed within 150 feet of any part of the operational area during flight operations.

C. Limitations of Operations

(1). The UAS shall be operated in Day time only, as defined by **14 CFR**
(2). UAS night operations are prohibited.
(3). The UAS shall be operated by VLOS at all times
(4). A Visual Observer shall be utilized at all times and must maintain VLOS at all times.
(5). The UAS shall remain within 1000ft horizontal distance of the PIC at all times.
(6). The UAS to be utilized is the **DJI Phantom 2 Vision + Unmanned Aircraft System**. No other systems will be operated.
(7). The UAS will have an altitude restriction of 300ft AGL.
(8). The UAS will not be operated at a speed exceeding 30 Knots.
(9). Operations Documents will be accessible to the PIC at all times and must be accessible during UAS operations and made available to the Administrator of request.
(10). PIC must inspect and ensure that UAS and ground control station is in airworthy condition prior to each operation; if determined un-airworthy, all operations will be suspended until such time as necessary maintenance has been performed and UAS is determined to be in a safe condition for flight.
(11). An operational flight test in required after any maintenance or alterations that may affect UAS operation or flight.
(12). UAS maintenance must follow Manufactures aircraft/component, maintenance, overhaul, and replacement, inspection, and life limit requirements.
(13). The operator must carry out its maintenance, inspections, and record keeping requirements, in accordance with the operating documents. Maintenance and inspection, and alterations must be noted in the aircraft records, including total flight hours, description of work performed, and the signature of the authorized person returning UAS to service.
(14). UAS must comply with all Manufacturers' Safety Bulletins.
(15). An authorized person must make an entry in the aircraft record of the corrective action taken against discrepancies discovered between inspections.
(16). UAS must by operated by a PIC possessing at least a Private Pilot Certificate, with most appropriate Class and category and at least a current Third class Medical.
(17). PIC must meet the flight review requirements of 14 CFR 61.56 in an aircraft in which the PIC is rated.
(18). Prior to operations for which exemption is requested, the PIC must have accumulated and logged , in a manner consistent with 14 CFR 61.51(b), a minimum of 25 hours of total time as a UAS rotorcraft pilot including at least 10 hours of UAS multi-rotor.
(19). Prior to operations PIC must have accumulated and logged a minimum of 5 hours as a UAS pilot in make and model listed in exemption. PIC must log at a minimum 3 takeoffs and landings in the preceding 90 days to meet currency requirements.
(20). PIC is required to operate the UAS with appropriate distances in accordance with 14 CFR 91.119.
(21). No Private Pilot may operate UAS within 5 nautical miles of an airport reference point as denoted on a current FAA chart.

(22). Operations with 5 NM of an airport must be conducted by a PIC who holds at least a Commercial Pilot Certificate Rotorcraft and a current Second Class Medical.
(23). No operations are allowed in the surface areas of Class B, C, and D airspace.
(24). No operations are allowed if the return home function and\or autopilot are, or are suspected to be malfunctioning.
(25). UAS shall not be operated from a moving platform of any type.
(26). No operations shall be conducted without an appropriate Certificate of Authority issued by the Administrator.
(27). A Visual Observer shall be utilized at all times when operating the UAS.
(28). Should the PIC or Visual Observer detect that a manned aircraft is being operated in close proximity to the operations area, the UAS shall give right of way to the manned aircraft, and the PIC shall cease operations and land until such time as the manned aircraft has cleared the area.
(29). The UAS will not be operated any closer than 500 to any structure without the express permission of the structure owner.

D. UAS Airworthiness

(1). The PIC shall ensure that the UAS is in an airworthy condition before each flight. Airworthiness shall be determined by a preflight inspection in accordance with DJI operating documents and any and all applicable Federal Aviation Regulations, and any additional requirements as defined by the Administrator. PIC shall document each preflight inspection by date, Aircraft total Flight time to date, any discrepancies noted, and signature and certificate number. Any discrepancy noted shall be addressed before UAS operation.

E. UAS Maintenance and Records

(1). The operator shall maintain aircraft maintenance logbooks. Each UAS shall have its own and separate maintenance log book. DJI documents, handbooks, user manuals, supplements, Safety Bulletins, etc., shall be the only approved documents for performing repairs, maintenance, inspections, overhauls, or replacement of life limited components. A record of each preflight inspection will additionally be recorded in these logbooks. The preflight inspection must be conducted by the PIC for that operation. Preflight signoff shall include at least the following information: date of operation, Aircraft Total time, aircraft serial or operating number, PIC signature and certificate number.
Example: Preflight inspection completed, No defects noted. 1-1-15, ACFTT 50.1 hours, UAS number 1, Kim Oberst CFII 2722888.
(2). Any required maintenance, inspection, alteration or repair must be completed by an approved person. At the completion of this work the approved person must make an entry in the aircraft log book that at least includes: Date, Aircraft serial or operating number, brief description of the discrepancy, inspection, alteration or repair, the reference material used as

guidance for the repair, statement approving the aircraft for return to service, and signature of person who completed the work.
Example: 1-1-15 UAS 1, ACFTT 50.1 hours, replaced number 3 rotor with new rotor, IAW DJI Phantom 2 Vision + User Manual. Flight or ops check completed. Aircraft is approved for return to service. Kim Oberst
(3). Maintenance records shall be kept with the UAS at all times and shall be made available to any authorized agency or the Administrator upon request.

F. Pilot in Command Requirements

(1). The Pilot in Command shall hold at least a Private Pilot Certificate and a current Third Class Medical whenever conducting operations. Operator prefers that the Certificate be in the most appropriate class and category to the UAS being operated. In this case a Rotorcraft rating.
(2). The Pilot in Command shall have at least 25 hours of rotorcraft UAV flight time before performing any operation for which exemption is requested.
(3). The Pilot in Command shall have at least 5 hours in make and model before performing any operation for which exemption has been requested.
(4). The Pilot in Command shall preform a pre-flight inspection before each flight is conducted.
(5). The Pilot in Command shall observe all Federal Aviation Regulations at all times with the exceptions of the exemptions requested by the operator. In those cases the Pilot in Command shall adhere to company operating standards or Federal Aviation Administration Limitations placed upon exemptions, whichever is more stringent.
(6). The Pilot in Command must hold a Commercial Pilot Certificate with Rotorcraft Class and Category and a current Second Class Medical to operate within 5 NM of an airport.
(7). The Pilot in Command will not operate the UAS without a Visual Observer present.
(8). The Pilot in Command must have 3 takeoff and landings within the preceding 90 days.
(9). The Pilot in Command must maintain a record of flight information to establish currency and that he or she meets the requirements of this section.

G. Visual Observers: Responsibilities and Requirements

(1). A Visual Observer shall be used during any and all operations of the UAS System.
(2). The Visual Observer shall maintain communication with the PIC at all times during UAS operation.
(3). The Visual Observer shall maintain Visual Contact with the UAS at all times. In the event that Visual Contact is lost the VO will notify the PIC who will immediately cease operations and land the aircraft.
(4). The Visual Observer shall also help the PIC maintain area of operations security and ensure that all nonessential persons remain clear of the area of operations. In the event of a breach by unauthorized person(s) the VO shall notify the PIC and operations will cease immediately.

(5). The Visual Observer shall also assist the PIC in looking for manned aircraft traffic near the operations area. If manned aircraft traffic is observed near the operations area, the VO will notify the PIC who will immediately cease operations and land the UAS.

H. Reporting of Incidents and/or Accidents

Any incident or accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA will be reported within 24 hours to:
FAA UAS Integration Office (AFS-80)
Accidents: National Transportation Safety Board
www.ntsb.gov.

3. Location of Operation and Request for Relief from Airport Proximity Limitation

The petitioner understands the FAA's concern for placing restrictions on the proximity a UAS can be operated in relation to an airport. However, the petitioner believes that certain relief can be granted in this matter based on the circumstances of the flight, altitude of the flight, area of the flight in relation to traffic patterns and protected instrument approach corridors. Also, the size and traffic of the airport certainly should be considered as a factor. The petitioner believes that pilot qualifications, ratings, and aeronautic experience; as well as communication with the airport, any ATC controlling facility, and aircraft in the area would fully mitigate any dangers. The petitioner also believes that since many rural airports often host model and remote controlled aircraft clubs and events without affecting normal operations, that measures could be put in place to ensure the safety of operation and integration of UASs' in close proximity to certain airports. From a commercial standpoint a great deal of potential opportunity is lost when an area of close to 78.5 square miles is off limits. As UAS operations become more prominent consumers will demand these services closer to airport facilities. It would not be in the interest of aviation or the public in general, to restrict these consumers from products or services because of their proximity to an airport. This could cause a negative impact to both the consumer and the airport. The petitioner therefore proposes the following reasonable restrictions that would ensure that the majority of these consumers could be serviced and the safety of operation of manned aircraft could be assured.

The UAS will be used for aerial surveys to include inspections of buildings, construction sites, real estate surveys or other commercial surveys requested in the south Florida area, anywhere from St. Augustine to Key West, FL. Most buildings and construction sites will be on the East Coast of Florida. Nearest Airports may include: Saint Augustine, Flagler County, Ormand Beach, Daytona Beach, New Smerna Beach, Massey, Dunn, Titusville, Coast Regional, Merrit Island, Melbourne, Sabastian, Vero Beach, St Lucie County, Witham, North Palm Beach County, West Palm Beach Intnl, Boca, Pompano Beach, Fort Lauderdale, Miami, Homestead, Marathon, Sugar Loaf, Key West. Please see a VFR Sectional. Please see proposed restrictions placed on UAS operations when operating within 5 miles of any airport in protocols and procedures in this document.

UAS inspected Buildings may range from 20 feet to 300 feet tall. The UAS will be operated in close proximity to the building walls to be inspected. An Infrared (IR) lens filter may be added to the camera for specific water intrusion inspection requirements.

Most operations in the Scope of this requested Exemption will be conducted at 100 to 300 feet AGL. Any manned aircraft operating in the vicinity of an airport should not be at these altitudes over persons or property unless they are in the process of a take-off or landing. Additionally they should be well aligned with either the approach or departure runway at these altitudes.

The petitioner therefore requests relief in part from the 5 NM limitation concerning proximity to an airport based on the following restrictions. Note: Class B, C, and D airports not included in this relief request. Airspace must be E or G for relief to be requested.
(1). Altitude restriction of 300 feet AGL within 3 to 5 Nautical miles of an airport.
(2). Altitude restriction of 100 feet AGL within 1 to 3 Nautical miles of an airport.
(3). No flight on the extended centerlines or 5 degrees to either side on any active or used runway out to 2 Nautical miles from Airport reference point.
(4). Notify airport of proposed time, distance and heading from airport of UAS operation.
(5). Request issuance of NOTAM specifying UAS operations.
(6). No flight within 1 NM of airport. This would mitigate the possibly of operating near the airport Traffic patterns.
(7). The PIC shall make "in the blind" broadcasts of UAS operations on the appropriate frequency stating. "Unmanned Aircraft Operations underway. Distance and bearing from airport and operating altitude".
(8). The Pilot in Command of the UAS must be a Certificated Commercial Pilot with Class and Category Rating most appropriate to the UAS for which the Exemption is granted. In this case, Commercial Pilot Rotorcraft with a current Second Class Medical.
(9). Anytime the PIC or Visual Observer has visual contact with a manned aircraft, or anytime an aircraft requests, operations will be immediately suspended and UAS will descend and land immediately.
(10). Aircraft has onboard programmable altitude restriction capability to help mitigate the possibility of inadvertent altitude deviation. This function must be used during operations within 5 nautical miles of an airport.
(11). The dorsal (top) area of the aircraft will be painted a bright safety orange to increase visibility of the aircraft from manned aircraft.

The petitioner believes that these restrictions and requirements safely mitigate the potential hazards associated with operation near a small, low volume airport. In fact, the petitioner believes that this limitation would make this operation safer than many others that are conducted at these types of airports; to include: aerobatics training, parachute operations, and Amateur Radio Controlled Aircraft Clubs that are frequently located on these types of airports.
The altitude restrictions requested would eliminate the possibility of a collision with manned aircraft as there is no reasonable circumstance where a manned aircraft should be at or near these altitudes, unless being on short final for approach or on departure. In fact the petitioner believes that any manned aircraft operating at, or near these altitude restrictions, other than on short final for approach or on departure, would be operating in a careless and reckless manner.
Petitioner also believes that requiring that the PIC hold a Commercial Pilot Certificate of most appropriate Class and Category helps to ensure that the operator has the knowledge, aeronautical experience, radio communication skills, and ability to safely operate within close proximity to airports located in class E and G airspace.
Petitioner also believes that in the highly unlikely event of a collision between a UAS and a manned aircraft that the damage possibility, is no more than that of a small sized bird strike due to the extremely light weight and size of the UAS. However, the petitioner should like to reiterate that the restrictions requested in this relief would make such a collision improbable, if not nearly impossible.

4. The Unmanned Aircraft System UAS and Frequencies Used

The petitioner will operate **the DJI Phantom 2 Vision +** UAS System. This shall be the only system operated by the petitioner. The Petitioner has attached the operating and user documents for the system as additional supplements for this petition. Frequencies to be used are in these documents. No modification to the factory system is to be utilized other than the dorsal surface area of the aircraft will be painted a bright safety orange to help manned aircraft see the unit while in flight. Please see attached supplemental documents for UAS information and for Frequencies used information.

5. The Public Interest

The request for this exemption is in the Public Interest as it is safe to assume that there are many consumer applications for the services that can be provided by UAS systems. It is clear that the Congress of the United States, the business sector, and the consumer want to integrate Unmanned Aircraft Systems into the National Airspace System and utilize their unique and cost effective capabilities. It is also in the Public Interest that many of the low level flight operations now conducted by manned aircraft could be accomplished with these light, fire resistant unmanned aircraft that can operate at a fraction of the cost to both the operator and consumer. These aircraft can be operated without risk of loss of life or limb, without significant financial impact to the operator or any person or property on the ground in the event of the loss of an aircraft. Finally, the petitioner believes that granting this exemption would help to further by Administrators process of integration of UAS systems and possibility help to create additional regulations and guidance to be used as these systems become more widely utilized.

Please forward any questions or concerns to the address or email below.
Sincerely,
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