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

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

CORRECTED COPY

The FAA is reissuing the April 1, 2015 grant of exemption of Exemption No. 11260. A correction was made to add the DJI Inspire aircraft to the Airworthiness Certification section and to Conditions and Limitations #1. Below is the amended Exemption No. 11260 that includes the aforementioned change. We made the correction in our records as of April 14, 2015.

April 1, 2015

Exemption No. 11260
Regulatory Docket No. FAA−2014−0736

Mr. Philip Leone
First Flight Photography, LLC
610 Broadway, #353
Newburgh, NY 12550

Dear Mr. Leone:

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

The Basis for Our Decision

By letter dated September 22, 2014, you petitioned the Federal Aviation Administration (FAA) on behalf of First Flight Photography, LLC (hereinafter petitioner or operator) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct aerial photography.

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

Discussion of Public Comments:

A summary of the petition was published in the Federal Register on October 7, 2014, (79 FR 60572). Four comments were received. An individual commenter and the Small UAV Coalition (Coalition) supported the petition, while the Air Line Pilots Association, International (ALPA) and the National Agricultural Aviation Association (NAAA) opposed it. The individual commenter in support of the petition noted the petitioner's background and experience in aviation. The individual stated the proposed PICs are qualified to fly sUAS in the proposed environment.

In support of the petition, the Small UAV Coalition (Coalition) stated the petitioner has proposed to abide by stronger safety measures than hobby and modeler groups operating similar aircraft. The Coalition stated that it does not believe that heightened safety measures should be required for the petitioner simply because of the commercial nature of its operations. The Coalition urged the FAA to adopt an evaluation framework for UAS operations under Section 333 of Public Law 112–95 that weighs the relative safety issues and risks of UAS by class and operational circumstances, rather than adopting artificial distinctions among unmanned aerial vehicles based on commercial and noncommercial operations. The petitioner's UAS pose considerably less safety risk than larger UAS. The Coalition asserted that because UAS operations like the petitioner's pose minimal risk to safety, they should be subject to minimal and appropriate regulations.

The Coalition noted the FAA is to consider the seven factors[1] in Section 333 as a minimum. The Coalition stated the petition shows the FAA should consider factors other than those specified in Section 333, such as location, altitude of its UAS, and pilot experience. The Coalition maintained that the petitioner's proposed operations satisfy the seven factors in Section 333 and include several additional mitigating factors to ensure the safety and security of the proposed UAS operations. The Coalition emphasized the FAA must evaluate each factor within the context of the petitioner's proposed UAS operations.

The Coalition also commented that the FAA should grant relief from the requirement to hold an airman's certificate. The Coalition further stated that if an airman certificate is required then, at a minimum, the FAA should provide an exception to the training and testing requirements in part 61 in favor of requirements pertinent to the aircraft and operation proposed. The Coalition also asserted that in section 333 Congress intended for the FAA to consider national security with respect to the operation as opposed to addressing it through pilot certification.

[1] Section 333(b) of P.L. 112 95 states, in part: "In making the determination under subsection (a), the Secretary shall determine, at a minimum-- (1) which types of unmanned aircraft systems, if any, as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard to users of the national airspace system or the public or pose a threat to national security; …"

The FAA notes that, as discussed in the grant of exemption to Trimble Navigation Ltd. (Exemption No. 11110), neither section 333, nor the FAA's exemption authority[2] allows the FAA to exempt pilots from the statutory requirement to hold an airman certificate as prescribed in 49 USC § 44711.

The Coalition commented that a visual observer (VO) should not be required for all small UAS operations. The Coalition further asserted that the presence of one or more VOs may allow the UAS to be operated beyond visual line of sight (VLOS) of the pilot in command (PIC) and that the petitioner's proposal to operate the unmanned aircraft (UA) within VLOS of the PIC and/or VO should be permitted.

The FAA notes that one of the determinations for operations under section 333 is operation within visual line of sight. The PIC is determined to be in command of the UA, s/he must maintain VLOS while operating the UA. The FAA also notes that a VO complements the PIC's capability to see and avoid other aircraft, including when the PIC may be momentarily attending to other flying tasks. The VO provides an additional level of operational safety.

ALPA expressed concern regarding several aspects of the petition. ALPA stated "there must be means both to ensure that the sUAS remains within the defined airspace and to ensure that the hazard of other aircraft intruding on the operation is mitigated." The FAA believes the limitations under which the petitioner will operate (i.e., VLOS and at or below 400 feet AGL) are sufficient mitigations to this risk so that the operations will not adversely affect safety.

ALPA noted that the petitioner does not state how the pilot and the observer will be able to communicate with each other. ALPA stated that text messaging, either by mobile phone or other means, could have an unknown latency that could and extend to several minutes. NAAA stated UAS observers must be present and able to communicate with the operator from the most minimal distance possible. The FAA has inserted the conditions and limitations regarding PIC and VO communications address those concerns.

ALPA asserted the UAS's lithium polymer batteries have numerous associated fire and explosion hazards as outlined in DOT/FAA/AR−09/55, "Flammability Assessment of Lithium-Ion and Lithium-Ion Polymer Battery Cell Designed for Aircraft Power Usage (January 2010)," and that the safe carriage of the batteries and the mitigations in place for known risks should be addressed. The referenced study was primarily conducted to determine how certain battery cells react in a fire situation aboard manned airplanes. Given the size of the battery and the operating conditions of the UAS, the FAA concludes that the use of a lithium polymer battery will not pose an undue safety risk for the proposed operations.

ALPA commented that command and control (C2) link failures are one of the most common failures on a UAS, and that lost link mitigations should require safe modes to prevent

[2] 49 USC § 44701(f).

flyaways or other scenarios. The FAA has inserted conditions and limitations in this exemption to mitigate the risk associated with such failures.

Regarding the petitioner's request for exemption from part 21, § 91.7, and § 91.203, ALPA noted their opposition to the attempt to avoid certifying the airworthiness of the sUAS. ALPA stated all aircraft in the National Airspace System (NAS) must operate to the same high level of safety.

ALPA also noted that the petitioner's proposed operations are for "compensation or hire," and therefore contends the pilot must hold at least a current FAA commercial pilot certificate with an appropriate category and class rating for the type of aircraft being flown, as well as specific and adequate training on the UAS make and model intended to be used. Similarly, ALPA asserted a current second-class airman medical certificate should be required. NAAA also commented on pilot qualification, stating—

> Just as manned aircraft pilots are required to undergo a rigorous training curriculum and show that they are fit to operate a commercial aircraft, so too must UAS operators. Holding a commercial certificate holds UAS operators to similar high standards as commercial aircraft operators and ensures they are aware of their responsibilities as commercial operators within the NAS. Medical requirements ensure they have the necessary visual and mental acuity to operate a commercial aircraft repeatedly over a sustained period of time.

The FAA has reviewed the knowledge and training requirements sport, recreational, private and commercial certificates and concluded that a UAS PIC holding a minimum of a sport pilot certificate, and operating under this exemption, would not adversely affect operations in the NAS or present a hazard to persons or property on the ground.

ALPA opposed an exemption from the pre-flight action requirements of § 91.103. In addition, although the petitioner did not request an exemption from § 91.113, ALPA noted the petitioner must specify a means to meet see and avoid requirements in § 91.113 given the absence of an onboard pilot. The FAA notes that all flights must be operated within VLOS of the PIC and VO.

ALPA mentioned commented that while the petitioner's aircraft has a barometric sensor, the platform does not have a barometric altimeter as required by 14 CFR § 91.121. ALPA stated that processes or mitigations must be in place to ensure the UA can accurately maintain altitude including engineering processes, software development and control, electronic hardware development and control, configuration management, and design assurance to ensure the aircraft and its control system(s) operate to the same level of safety as other aircraft operated commercially in the National Airspace System (NAS).

Regarding the fuel requirements of § 91.151, ALPA argued that using batteries as the only source of an aircraft's power is a substantial shift from traditional methods of propulsion, and

requires further research to determine best safety practices. The FAA has inserted a condition and limitation that addresses this concern.

ALPA also expressed concern that the petition makes no reference to compliance with, or a request for waiver from, 14 CFR 61.195, Flight instructor limitations and qualifications, which defines the requirements for flight instructors. A certificated flight instructor is authorized to provide the instruction required for the certificates or ratings or currency listed in 14 CFR § 61.193. A person instructing on how to operate the UAS under the petitioner's training program would not need to be a certificated flight instructor because the instruction is not being provided for a certificate or rating listed in § 61.193. We note that none of the UAS operations proposed by the petitioner require such flight instruction because § 61.31(*l*) allows for operation of the UAS by an airman who is current per 14 CFR § 61.56 without a category and class rating. Instruction provided toward obtaining the pilot certificate required by this exemption would need to be provided by a certificated flight instructor.

ALPA opposed the petitioner's request for exemption from the minimum safe altitude requirements of § 91.119, stating all aircraft in the NAS must operate to the same high level of safety, which includes maintaining a safe altitude. Conditions and limitations below require that operations will be conducted away from people not participating in the operation.

ALPA expressed concern on whether the petitioner's UAS can comply with the aircraft light requirements for night operations in § 91.209, given its limited electric power. The petitioner indicates that night operations will not be conducted and this exemption limits operations to daytime only.

Regarding §§ 91.405(a), 91.407(a)(1), 91.409(a)(2), and 91.417(a) and (b), ALPA opposed the petitioner's attempt to avoid compliance with established aircraft maintenance and recordkeeping requirements. ALPA states the UAS should comply with the same level of safety as other aircraft operated commercially in the NAS. The FAA finds that the conditions and limitations below are sufficient to ensure that safety will not be adversely affected.

ALPA also expressed concern that the petitioner's request is not for a single specific operation or location, but for all operations of the same general type. ALPA stated that this results in a considerable increase in the FAA's oversight tasks. The FAA notes ALPAs concern and in order to minimize potential impact to the NAS, the FAA requires that each operator secure a Certificate of Authorization or COA which covers specific details of the petitioners operation. The FAA recognizes that UAS integration will generate new NAS access demand and will review and adjust accordingly.

NAAA noted that its members operate in low-level airspace, and therefore clear low-level airspace is vital to the safety of these operators. NAAA stated that seeing and avoiding other aircraft and hazardous obstructions is the backbone for agricultural safety, and that agricultural pilots depend on pilots of other aircraft to perform their see-and-avoid functions

to prevent collisions. NAAA believes UAS operations at low altitudes will increase the potential for collision with agricultural aircraft.

The FAA recognizes these concerns and has incorporated associated conditions and limitations into this exemption, including: (a) a Notice to Airmen (NOTAM) issued for all operations; (b) operations conducted within VLOS of the pilot in command (PIC) and the VO; and (c) the UAS PIC must always yield right-of-way to manned aircraft.
NAAA stated that FAA airworthiness certification should be a requirement for all unmanned aircraft to operate within the NAS. NAAA recommended UAS be equipped with ADS-B or similar identification and positioning systems, strobe lights, high-visibility markings and registration numbers. NAAA also recommended UAS be operated strictly within the line-of-sight of the ground controller, with the assistance of a VO and clear of any low-flying manned aircraft.

As discussed below, Section 333 of the FAA Modernization and Reform Act of 2012 authorizes the Secretary of Transportation to determine, considering a number of factors laid out in the statute, that an airworthiness certificate is not necessary for certain operations. The Secretary has made that determination in this case and therefore the aircraft operated by the petitioner will not need to be certificated by the FAA.

Airworthiness Certification

The UAS proposed by the petitioner are the DJI Phantom 2 Vision Plus, DJI Spreading Wings S1000, and DJI Inspire.

The petitioner requested relief from 14 CFR part 21, C*ertification 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, 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. 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, First Flight Photography, LLC 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, First Flight Photography, LLC is hereafter referred to as the operator.

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

1. Operations authorized by this grant of exemption are limited to the DJI Phantom 2 Vision Plus, DJI Spreading Wings S1000, and DJI Inspire 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 April 30, 2017, unless sooner superseded or rescinded.

Sincerely,

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

September 22, 2014

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

Re: Exemption Request Pursuant to Section 333 of the FAA Reform Act of 2012

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the Reform Act) and C.F.R. Part 11, First Flight Photography LLC, owner and operator of Small Unmanned Aircraft Systems (UASs), request to be exempted from the Federal Aviation Regulations (FARs) listed below so that First Flight Photography may operate UASs commercially in airspace regulated by the Federal Aviation Administration; as long as such operations are conducted within and under the conditions outlined herein or as may be established by the FAA as required by section 333.

First Flight Aviation LLC, is co-owned by Philip Leone and John Kahrs who are both professional Pilots with Airline Transport Pilot privileges. Both owners have flown for the United States Air Force and major airlines for decades with a combined total of over 17,000 mishap free hours. Philip Leone is a graduate of the Air Force Aircraft Mishap Investigation Course and is a current Chief of Safety in the New York Air National Guard. All UAV operations will be in accordance with First Flight Photography's Standard Operating Procedures (SOPs) or as established by the FAA.

The Name and address of the applicant is:

First Flight Photography, LLC
Attn: Philip Leone
Phone: 845-527-5728
Email: takeflight@firstflightphotography.com
Address: 610 Broadway, #353 Newburgh, New York 12550

As described below, the requested exemption would permit the operation of lightweight (less than 55 lbs total take off gross weight) UASs under controlled conditions for commercial use by professional certificated pilots thereby enhancing safety and fulfill the Secretary of Transportation's (the FAA Administrator's) responsibilities to "....establish requirements for the safe operation of such aircraft systems in the national airspace system." Section 333(c) of the Reform Act.

First Flight Photography respectfully requests the grant of an exemption to the following specific sections of the Title 14 Code of federal Regulations allowing it to operate lightweight UAS's for commercial use:

> 14 CFR 21, subpart H, 14 CFR 45.23(b), 14 CFR 91.7(a), 91.9 (b)(2), 91.103(b), 91.109, 91.119, 91.121, 91.151(a), 91.203(a) &(b), 91.405(a), 91.407(a)(1), 91.409(a)(2), 91.417(a) &(b).

First Flight Photography submits this application in accordance with the Reform Act, 112 P.L. 95 331-334, seeking relief from any currently applicable FAR's operating to prevent First Flight Photography's future commercial use of small UASs to operate in the national airspace system as described below. The Reform Act Section 332 provides for such integration of civil unmanned aircraft systems into our national airspace system as it is in the public's interest to do so. First Flight Photography's lightweight UASs meet the definition of "small unmanned aircraft" as defined in section 331 and therefore the integration of First Flight Photography's lightweight UASs are expressly contemplated by the Reform Act. First Flight Photography would like to operate its lightweight UASs prior to the time period by which the Reform Act requires the FAA to promulgate rules governing such aircraft.

The Reform Act directs the Secretary of Transportation to consider whether certain unmanned aircraft systems may operate safely in the national airspace system (NAS) before completion of the rulemaking required under Section 332 of the Reform Act. In making this determination, the Secretary is required to determine which types of UASs do not create a hazard to users of the NAS or the public or pose a threat to national security in light of the following:

- The UAS's size, weight, speed and operational capability
- Operation of the UAS in close proximity to airports and populated areas
- Operation of the UAS within visual line of sight of the operator

Reform Act 333 (a). If the secretary determines that such vehicles "may operate safely in the National Airspace System, the Secretary shall establish requirements for the safe operation of such aircraft in the National Airspace System."

First Flight Photography's UASs are rotorcraft weighing less than 55 pounds including payload. They operate at a speed of less than 50knots and have the capability to hover and move in the vertical and horizontal plane simultaneously. The UAS will operate only within the line of sight of the pilot within a protected flight area as described below. Such operations will insure that the UASs will not create a hazard to the users of the national airspace system or the public.

The very small nature of the UASs utilized by First Flight Photography combined with the safety protocols outlined below will allow for a greater than

equivalent level of safety in which Congress envisioned that the FAA must, by exemption allow commercial operations of UASs to commence immediately. Also due to the size of the UASs and the areas and altitudes they will operate, approval of the exemption presents no national security issue and absolutely minimal safety concerns which have been mitigated through a rigorous risk management process. Given the clear direction given in Section 333 of the Reform Act, the authority contained in the Federal Aviation Act, as amended; the strong equivalent level of safety surrounding the proposed operations, the significant public benefit, including enhanced safety, reduced emissions utilizing UASs vice traditional aircraft as well as the economic impact of greatly reducing the cost of aerial photography thereby benefiting the greater public's interest. Accordingly, the applicant requests that the FAA grant the requested exemption without delay.

The following limitations are considered to be binding for the operation of UASs for commercial purposes by First Flight Photography :

1. Flights will be operated in the line-of-sight by a ground based pilot
2. Flights will only occur in the daytime and clear of clouds
3. The UASs will weigh less than 55lbs at take off and during flight
4. Flights will be terminated with 25% of battery life remaining
5. Flights will be operated at an altitude at or below 400' AGL
6. Pilots, camera operators and observers will be trained IAW the applicable portion of the UAS's manual as well as the SOPs.
7. Minimum UAS crew will be one certificated Commercial pilot or higher rating with a current FAA medical. A camera operator and or observer may be added as required to further reduce the possibility of task saturation by the pilot depending on the mission requirements.
8. Pilot, observer and camera operator will maintain real time communication capability throughout flight operations.
9. The UAS Pilot will conduct a full site survey to determine the Area of Responsibility (AOR). This AOR is the actual area for UAS operations for a particular day. Each survey will include the assessment of potential hazards to include but not limited to airspace classification, NOTAMS, temporary flight restrictions, closest airport proximity, natural and man-made obstacles, and unnecessary persons which may pose a risk to operations or safety. If deemed necessary, the crew will employ additional personal as safety observers.
10. First Flight Photography will employ safety observers as well as sign notifications in areas close to public activity.
11. A thorough briefing will be conducted, prior to the first flight of the day in an AOR, utilizing the briefing guide in the SOPs. All persons who will be in the AOR while UAS flights are conducted will be present for this briefing.
12. First Flight Photography will obtain consent (verbal or written) for any persons who need to be within 100 feet of UAS flight operations.

13. Written and or verbal permission from the relevant property owners will be obtained prior to flight.
14. All required permissions and permits will be obtained from territorial, state, county or city jurisdictions, including local law enforcement, fire or other governmental agencies.
15. If the UAS loses communications or loses its GPS signal, the UAS will have the capability to return to a pre-determined location within the AOR and land autonomously.
16. The UAS will have the ability to abort a flight in case of unpredicted obstacles or emergencies.

14 C.F.R Part 21 Subpart H: Airworthiness Certificates 14 C.F.R. 91.7(a), 91.203 (a)(1)

Subpart H, entitled Airworthiness Certificates, sets forth requirements for procurement of necessary airworthiness certificates in relation to FAR 91.203(a)(1) The size, weight and defined area of operations for First Flight Photography UAS flights permits exemption from Part 21 because First Flight Photography meets an equivalent level of safety pursuant to Section 333 of the Reform Act. The FAA is authorized to exempt aircraft from the airworthiness certificate requirement under both the ACT (49 U.S.C. 44701(f)) and Section 333 of the Reform Act. Both pieces of legislation permit the FAA to exempt UASs from the airworthiness certificate requirement in consideration of weight, size, speed, maneuverability and proximity to areas such as airports and dense populations. First Flight Photography meets or exceeds each of these elements.

14 C.F.R. 91.203 (a &b) provides for carrying of civil aircraft certifications and registrations. They are inapplicable for the same reasons stated above. The equivalent level of safety will be achieved by maintaining such certifications and registrations at First Flight Photography's flight operations center.

14 C.F.R. 91.7(a) prohibits the operation of an aircraft without an airworthiness certificate. As no such certificate will be applicable in the form contemplated by the FARs, this regulation is inapplicable.

14 C.F.R. 91.9(b)(2) Civil Aircraft Flight Manual in the Aircraft

14 C.F.R. 91.9(b)(2) requires an aircraft flight manual in the aircraft. As there are no pilots of passengers, and given the size of the UASs, this regulation is inapplicable. An equivalent level of safety will be achieved by maintaining an operators manual at the flight operations center. The FAA has previously issued exemptions to this regulation in Exemption Nos. 8607,

8737, 8738, 9299, 9299A, 9565, 9565B, 10167, 10167A, 10602, 10700 and 32827.

14 C.F.R. 91.103(b) Preflight action

14 C.F.R. 91.103 Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information must include: (b) For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information. This subparagraph is not applicable due to our off airfield operations.

14 C.F.R. 91.109 Flight instruction; Simulated instrument flight and certain flight tests.

14 C.F.R. 91.109 and all the subparagraphs address the operation of a civil manned aircraft in conjunction with training and flight tests. The UAS to be employed by First Flight Photography are not designated in this category.

14 C.F.R. 91.121 Altimeter Settings

14 C.F.R. 91.121 regarding altimeter settings is inapplicable because First Flight Photography UASs utilize GPS systems and internal gyroscopes to provide spatial stability and a reference datum.

14 C.F.R. 91.151 Fuel Requirements for Flight in VFR Conditions

14 C.F.R. 91.151 prohibits an individual from beginning a "flight in an airplane 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- (1) During the day to fly after that for at least 30 minutes; or (2) At night, to fly after that for at least 45 minutes"

The battery powering the UAS provides approximately 25 minutes of powered flight which is less than the reserve requirement alone by FARs for day or night VFR flight. Given the limitations on the UAS's flight envelope, proposed AOR size, battery life and its ability to land immediately it is reasonable to allow an exception.

An equivalent level of safety can be achieved by limiting flights to 25% of battery power. This restriction would be more than adequate to return the UAS to its planned landing zone in the AOR.

Similar exemptions have been granted to other operations, including Exemptions 2689F, 5745, 10673 and 10808.

14 C.F.R. 45.23 Marking of the Aircraft

Applicable Codes of Federal regulations require aircraft to be marked according to certain specifications. First Flight Photography UASs are unmanned; do not have a cabin, cockpit or pilot station on which to mark certain words or phrases. Further, two-inch lettering is impractical to place on such small aircraft. First Flight Photography will, however, place the word "EXPERIMENTAL" on its fuselage as required by 14 C.F.R. 45.29 (f) so that the pilot, camera operator, observer and any other persons operating in the AOR can see the markings on the UAS. The FAA has previously issued exemptions to this regulation through Exemptions Nos. 8738, 10167, 10167A, and 10700.

14 C.F.R. 91.119 Minimum Safe Altitudes

14 C.F.R. 91.119 prescribes safe altitudes for the operation of civil aircraft. It allows helicopters to be operated at lower altitudes in certain conditions. First Flight Photography will only operate its UASs at or below 400 AGL. First Flight Photography will operate its UASs in a defined AOR that has been carefully reviewed for hazards and minimizes the presence of any persons not essential for operations. Flights will only be conducted over private property with consent of the property owner. The equivalent level of safety will be achieved given the size, weight and speed of the UAS as well as the location where it is operated. Compared to flight operations with traditional aircraft or rotorcraft weighing far more than 55lbs, operating below 500 AGL with flammable fuel UAS operations present a far smaller risk.

14 C.F.R. 91.405 (a), 407 (a)(1), 409(a)(2), 417(a&b) Maintenance Inspections

These regulations require that an aircraft operator or owner "shall have the aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as prescribed in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter..." and others shall inspect or maintain the aircraft in compliance with Part 43.

These regulations only apply to aircraft with an airworthiness certificate. They will not, therefore, apply to First Flight Photography UASs should its requested exemption be granted. As an equivalent level of safety First Flight Photography requires its pilots to conduct a preflight, through-flight and post flight inspection of the UAS to ensure it's flight worthiness prior to launch. Each UAS is flown in compliance with the applicable manufactures manual to include all software update cycles as well as flight checklists. In the event of a malfunction the UAS can land immediately.

Privacy

All flights will occur over private or controlled access property with the property owner's prior consent and knowledge.

Summary

First Flight Photography is seeking exemption from the following rules: 14 CFR 21, subpart H, 14 CFR 45.23(b), 14 CFR 91.7(a), 91.9 (b)(2), 91.103(b), 91.109, 91.119, 91.121, 91.151(a), 91.203(a)&(b), 91.405(a), 91.407(a)(1), 91.409(a)(2), 91.417(a)&(b).

Approval of the above exemptions allowing commercial operations of small UASs in the service of aerial photography will greatly enhance safety by reducing the overall risk associated with traditional aircraft. Traditional aerial photography requires large aircraft weighing thousands of pounds and carrying hundreds of pound of fuel presenting a significant risk to life and property. With First Flight Photography's use of small UASs weighing less than 55 lbs, powered by batteries and operating at or below 400 AGL they virtually eliminate all of the risk associated with traditional aerial photography. The UASs will carry no people thereby eliminating the exposure to the risks associated with flying while accomplishing the same task in a much safer manner.

Granting First Flight Photography the above exemptions will allow for the expansion of UAS systems into the future, in a professional, safety conscious culture steep in the tradition of Aviation. The safety culture established by the founding members of First Flight Photography based on their first-hand experience as professional aviators who are currently working for a major U.S. Air Carrier as well as the United States military are invaluable for laying the proper foundation into this vast new chapter of aviation history.

First Flight Photography respectfully requests that the FAA grant its exception without delay. The FAA has the authority to issue the exemption sought by First Flight Photography pursuant to the Federal Aviation Act, 85 P.L. 726 (1958), as amended (the "Act").

Sincerely,

Philip J. Leone
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