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

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

July 28, 2015

Exemption No. 12205
Regulatory Docket No. FAA–2015–1873

Mr. Nicholas Flom
FP AeroSolutions, LLC
1560 49th Avenue South
Grand Forks, ND 58201

Dear Mr. Flom:

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

By letter dated May 10, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of FP AeroSolutions, LLC (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 is a Phantom 2 Vision+.

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the

aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection[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, FP AeroSolutions, 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.

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

Conditions and Limitations

In this grant of exemption, FP AeroSolutions, 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 Phantom 2 Vision+ when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

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

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

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

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

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

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

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

8. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g., replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a PIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.

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

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

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

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

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

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

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

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

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

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

18. If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property.

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

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

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

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification

(N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

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

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

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

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

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

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

28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS−80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

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

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

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

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

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

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

Sincerely,

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

Enclosures

May 10, 2015

Docket Operations, M-30
U.S. Department of Transportation (DOT)
1200 New Jersey Avenue, SE
Room W12-140, West Building Ground Floor
Washington, D.C. 20590-0001

RE: Petition to the FAA for Section 333 Exemption

Dear Sir or Madam:

FP AeroSolutions, LLC hereby submits to the Federal Aviation Administration, pursuant to the FAA Modernization and Reform Act of 2012, an exemption for petition, in accordance with Section 333 of the Act.

This letter provides requested information as listed in the FAA's "Public Guidance for Petitions for Exemptions Filed under Section 333".

FP AeroSolutions, LLC Background:
FP AeroSolutions, LLC is comprised of professionals who are ATP rated and have provided aviation solutions for 15 years. The backgrounds include experience as an Assistant Chief Flight Instructor for the largest collegiate flight school in the world and Director of Safety for an FAA designated UAS Test Site.

Purpose for the Exemption
FP AeroSolutions, LLC requested exemption would permit FP AeroSolutions, LLC to operate SUASs under controlled conditions in airspace that is (1) limited (2) predetermined (3) controlled as to access, and (4) would provide safety enhancements to the already safe operations of those aircraft of similar size, weight, speed, and operating capability.

FP AeroSolutions, LLC exemption request would permit its commercial operation of SUAS for aerial photography and videography in tightly controlled and limited airspace. Aerial photography and videography services will be offered to homeowners, realtors, builders, contractors, and/or inspectors for use in, but not limited to, real estate marketing and safer inspections of home and building exteriors. All operations will be conducted on private property and with the written and/or oral permission of the property owner(s). Operations will always be conducted in areas that are clear of all people, except the pilot in command (PIC) and the Visual Observer. Such operations will ensure that the SUAS will not create a hazard to users of the national airspace system or the public. FP AeroSolutions, LLC operation will not differ significantly from the situation described in Grant of Exemption No. 11191 (Singler's Creations).

Contact Information

Nicholas Flom
FP AeroSolutions, LLC
1560 49th Ave S
Grand Forks, ND 58201
Mobile: 701-610-3434
Email: nicholasflom@aol.com

List of Specific Section of 14 CFR for which exemption is sought:

The listing matches the list on page 7 of the FAA's "Public Guidance for Petitions Filed Under Section 333", Rev. 9/25/2014

14 CFR 21, Subpart H – Airworthiness Certificates

14 CFR 61.113 (a) and (b), Certification: Pilots, Flight Instructors, and Ground Instructors

14 CFR 91.7(a), Airworthiness required for operation

14 CFR 91.105, Flight crewmembers at stations

14 CFR 91.119(c), Minimum safe altitudes

14 CFR 91.121, Altimeter settings

14 CFR 91.151, Fuel requirements for flights in VFR conditions

14 CFR 91.405 (a), Maintenance required

14 CFR 91.407 (a)(1), Operations after maintenance

14 CFR 91.409 (a)(1) and (2), Inspections

14 CFR 91.417 (a) and (b) , Maintenance records

Section 333 of the Reform Act grants the Secretary authority to determine (1) if an unmanned aircraft system, as a result of its size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight (VLOS) does not create a hazard to users of the NAS or the public or pose a threat to national security, and (2) whether a certificate of waiver, certificate of authorization, or airworthiness certification under 49 USC 44704 is required for the operation of civil (non- governmental) UASs. Therefore, 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.

Operation Overview

FP AeroSolutions, LLC's SUASs are quadcopters, weighing 3 or fewer lbs. (including payload). The SUASs have the capability to hover and move in the vertical and horizontal planes simultaneously. They will operate only in visual line of slight (VLOS) and will operate only in tightly controlled and limited airspace. They are capable of operating at speeds of up to 29 knots, but will be routinely operated at much lower speeds. They will routinely be operated below 200 feet above ground level (AGL), and never above 400 feet AGL.

Aircraft

FP AeroSolutions, LLC operates Phantom 2 Vision+ (Phantom) SUASs manufactured by DJI, a well-known leader in quadcopter technology. DJI strives to bring new perspectives to aerial work and help companies accomplish feats safer, faster, and with greater efficiency. They have an unparalleled commitment to R&D, a culture of constant innovation, and a focus on transforming complex technology into easy-to-use devices.

The standard Phantom quadcopter package includes the Phantom itself, camera, gimbal, propulsion system, flight control system, 5.8 GHz remote controller, and 2.4 GHz Wi-Fi communication system. The remote uses a 5.8 GHz frequency to prevent interference with the video/telemetry channel. This second channel allows for a constant connection with the Phantom to monitor it via a smartphone that is attached to the remote controller.

The Phantom is about 1 foot square in size. It has a maximum ascent speed of 11 knots, a maximum descent speed of 3 knots, and a maximum flight speed of 29 knots. While operating within VLOS, the remote control has a range of 2,624 feet. The total weight (including the payload) is 2.55 lbs.

The Phantom is equipped with a DJI Naza-M V2 flight control system. This provides for incredible ease of use and stability. Pilots can control the Phantom's movements in many directions – including pitch (forward and backward), roll (left and right), elevator (up and down), and yaw (turn left or right). The flight control system can also provide Intelligent Orientation Control (IOC), failsafe, battery level warnings, and show the aircraft's current heading, direction, and approximate distance from home on the on-screen radar. The built- in GPS system aids in stabilizing the aircraft and automatically and safely returns it back to its home point in any case where communication between the remote control and quadcopter are lost.

The Inertial Measurement Unit (IMU) has a built-in inertial sensor and a barometric altimeter that measures both attitude (ATTI) and altitude. The inertial measurement tells the Phantom how it's tilted. And the gyros tell it if it's rotating in any particular direction.

The Phantom's compass reads geomagnetic information and assists the Global

Positioning System (GPS) to accurately calculate the position and height of the aircraft. The vertical hover accuracy is +/- 2.6 ft. The horizontal hover accuracy is +/- 8.2 ft.

The Phantom has LED flight indicators beneath each of its four rotor arms. The LEDs illuminate to indicate the status of the flight control system and alert the PIC of any possible issues.

Such highly advanced capabilities will ensure that the SUASs can be safely operated and "not create a hazard to users of the national airspace system or the public."[6]

Equivalent Level of Safety

In an effort to join the FAA in its mission to provide the safest, most efficient aerospace system in the world and to minimize the risk to the NAS or to persons and property on the ground, FP AeroSolutions, LLC agrees to be bound by the following limitations and conditions when conducting commercial operations under an FAA issued exemption:

A. For the purposes of ensuring SUASs will be operated within the standards that the FAA has allowed in the AMA National Model Aircraft Safety Code (Attachment: "AmaSafetyCode.pdf" document.):
    1. SUASs will not be flown:
        a. In a careless or reckless manner.
        b. At a location where SUAS activities are prohibited.
    2. SUAS pilots will:
        a. Yield the right of way to all human-carrying aircraft.
        b. See and avoid all aircraft and a spotter must be used when appropriate.
        c. Not fly higher than 400 feet above ground level or within three (3) miles of an airport without notifying the airport operator.
        d. Not interfere with operations and traffic patterns at any airport, heliport or seaplane base except where there is a mixed use agreement.
        e. Not exceed a takeoff weight of 55 pounds (including payload).
        f. Ensure the aircraft is identified by affixing the owner's contact

information to the outside of the SUAS.

g. Not operate SUASs while under the influence of alcohol or while using any drug that could adversely affect the PIC's ability to safely control the model.

h. Not operate SUASs carrying pyrotechnic devices that explode or burn, or any device which propels a projectile or drops any object that creates a hazard to persons or property.

3. SUASs will not be flown unless:
    a. The aircraft, control system and pilot skills have successfully demonstrated all maneuvers intended or anticipated prior to the specific event.
    b. An inexperienced pilot is assisted by an experienced pilot.
4. All pilots shall avoid flying directly over unprotected people, vessels, vehicles or structures and shall avoid endangerment of life and property of others.
5. A successful radio equipment ground-range check in accordance with manufacturer's recommendations will be completed before the first flight of a new or repaired model aircraft.
6. SUASs must use the radio-control frequencies currently allowed by the Federal Communications Commission (FCC).
7. SUASs will not knowingly operate within three (3) miles of any pre-existing flying site without a frequency-management agreement.
8. Excluding takeoff and landing, no SUASs may be flown outdoors closer than 25 feet to any individual, except for the PIC and the Visual Observer (VO) located at the takeoff site.
9. Under no circumstances may a pilot or other person touch a SUAS in flight while it is still under power, except to divert it from striking an individual.
10. The PIC of the SUAS shall:

    a. Maintain control during the entire flight, maintaining visual contact without enhancement other than by corrective lenses prescribed for the pilot.

    b. Fly using the assistance of a camera or First-Person View (FPV) only in accordance with the procedures outlined in AMA Document #550.

    c. Fly using the assistance of autopilot or stabilization system only in accordance with the procedures outlined in AMA Document #560.

11. The flying area must be clear of all utility wires or poles and an SUAV will not be flown closer than 50 feet to any above-ground electric utility lines.

12. The flying area must be clear before the engine is started, except for PIC and the VO.

B. In addition to the above rules outlined by the AMA National Model Aircraft Safety Code and in an effort to enhance the safety offered by the already safe operations mentioned above, FP AeroSolutions, LLC also agrees to be bound by the following limitations and conditions:

1. Operations authorized by this petition for exemption are limited to the following aircraft described in the operating documents which is the DJI Phantom 2 Vision + Unmanned Aircraft System, a quad rotor aircraft with a maximum takeoff weight of less than 6 pounds. Proposed operations of any other aircraft will require a new petition or a petition to amend this grant.

2. UAS operations under this petition are limited to aerial photography and videography services will be offered to homeowners, realtors, builders, contractors, and/or inspectors for use in, but not limited to, real estate marketing and safer inspections of home and building exteriors.

3. The UA will not be flown at an indicated airspeed exceeding 29 knots (15 m/s).

4. The UA will be operated at an altitude of no more than 400 feet above ground level (AGL), as indicated by the procedures specified in the operating documents. All altitudes reported to ATC must be in feet AGL.

5. The UA will 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.

6. All operations will utilize a VO. The VO will be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC will be able to communicate verbally at all times. Electronic messaging or texting will not be permitted during flight operations. The PIC will be designated before the flight and cannot transfer his or her designation for the duration of the flight.

7. The VO will not perform any other duties beyond assisting the PIC with seeing and avoiding other air traffic and other ground based obstacles/obstructions and is not permitted to operate the camera or

other instruments.

8. The operating documents will be accessible during UAS operations and made available to the Administrator upon request. The operator will follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the responsibility of FP AeroSolutions, LLC to track such revisions and present updated and revised documents to the Administrator upon request. FP AeroSolutions, LLC will also present updated and revised documents if it petitions for extension or amendment. If FP AeroSolutions, LLC determines that any update or revision would affect the basis upon which the FAA granted this exemption, then FP AeroSolutions, LLC will petition for amendment to their exemption. The FAA's UAS Integration Office (AFS-80) will be contacted if questions arise regarding updates or revisions to the operating documents.

9. Prior to each flight the PIC will inspect the UAS to ensure it is in a condition for safe flight. 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. The Ground Control Station will be included in the preflight inspection. All maintenance and alterations will be properly documented in the aircraft records.

10. 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 in accordance with the operating documents. The PIC who conducts the functional test flight will make an entry in the UAS aircraft records of the flight. The requirements and procedures for a functional test flight and aircraft record entry will be added to the operating documents.

11. The preflight inspection section in the operating documents will be amended to include the following requirement: The preflight inspection will account for all discrepancies, i.e. inoperable components, items, or equipment, not covered in the relevant preflight inspection sections of the operating documents.

12. The operator will follow the manufacturer's UAS aircraft/component, maintenance, overhaul, replacement, inspection, and life limit requirements, with particular attention to flight critical components that may not be addressed in the manufacturer's manuals.

13. The operator will carry out their maintenance, inspections, and record keeping requirements, in accordance with the operating documents.

Maintenance, inspection, and alterations will be noted in the aircraft logbook, including total flight hours, description of work accomplished, and the signature of the authorized UAS technician returning the UAS to service.

14. Each UAS operated will comply with all manufacturer Safety Bulletins.

15. An authorized person will make a record entry in the aircraft record of the corrective action taken against discrepancies discovered between inspections.

16. Qualification for the Pilot in Command

    a. Certifications: Operations will be conducted by a Pilot in Command (PIC) possessing at least a private pilot certificate and at least a third-class medical certificate.

    b. Logged Hours: Prior to operations the PIC will have accumulated and logged 20 flights or log 20 hours of flight time (the greater of the two) with the Phantom.

    c. Currency: The PIC will have accomplished, during dedicated training sessions, 3 take-offs and landings in the preceding 90 days (for currency purposes).

    d. Flight Training:

        i. Successfully learn and demonstrate all flight maneuvers in the "Phantom Pilot Training Guide". (Attachment: "PhantomTrainingGuide.pdf" document).
        ii. Study and be familiar with all sections of the "Phantom 2 Vision+ User Manual". (Attachment: "PhantomUserManual.pdf" document).
        iii. Study and be familiar with all sections of the "Guide to the Phantom 2 Vision & Vision+". (Attachment: "PhantomGuide.pdf" document).
        iv. Study, be familiar with, and demonstrate (where possible) the "Always be Prepared for the Worst" scenarios. (See "Always be prepared for the Worst" on page 13 of the attached "Guide to the Phantom 2 Vision & Vision+").

    e. Emergency and Evasive Maneuvers: The PIC will have demonstrated the ability to safely operate the Phantom in a manner consistent with how it will be operated in for actual FP AeroSolutions, LLC operations, including evasive and emergency

maneuvers and maintaining appropriate distances from people, vessels, vehicles and structures. The logged hours referenced above will document this.

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

18. The UA will not operate within 5 nautical miles of an airport reference point as denoted on a current FAA-published aeronautical chart unless a letter of agreement with that airport's management is obtained, and the operation is conducted in accordance with a NOTAM. The letter of agreement with the airport management will be made available to the Administrator upon request.

19. The UA will 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.

20. If the UAS loses communications or loses its GPS signal, the UA will return to a predetermined location within the private or controlled-access property and land or be recovered in accordance with the operating documents.

21. The PIC will abort the flight in the event of unpredicted obstacles or emergencies in accordance with the operating documents.

22. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough power to fly at normal cruising speed to the intended landing point and land the UA with 30% battery power remaining in accordance with the operating documents.

23. The operator will obtain an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA) prior to conducting any operations under this petition for exemption.

24. All aircraft operated in accordance with this petition will 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 will be as large as practicable.

25. Before conducting operations, the radio frequency spectrum used for operation and control of the UA will comply with the Federal

Communications Commission (FCC) or other appropriate government oversight agency requirements.

26. The documents required under 14 CFR §§ 91.9 and 91.203 will be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents will be made available to the Administrator or any law enforcement official upon request.

27. The UA will remain clear and yield the right of way to all other aviation operations and activities at all times.

28. The UAS will not be operated by the PIC from any moving device or vehicle.

29. Flight operations will be conducted at least 500 feet from all nonparticipating persons (persons other than the PIC or VO), vessels, vehicles, and structures unless:

    a. Barriers or structures are present that sufficiently protect nonparticipating persons from debris in the event of an accident. The operator will 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 will cease immediately and/or;

    b. The aircraft is operated near vessels, vehicles or structures where the land owner/controller has granted permission and the PIC has made a safety assessment of the risk of operating closer to those objects and;

    c. Operations near the PIC or VO do not present an undue hazard to the PIC or VO per § 91.119(a).

30. All operations will 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 prior to the beginning of every flight.

31. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA will 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.

The operation of SUASs, weighing less than 3 lbs., conducted in the strict conditions as outlined above, will provide an equivalent level of safety supporting the grant of exemptions requested herein, including exempting the applicant from the requirements of Part 21 and allowing commercial operations.

These lightweight aircraft operate at slow speeds, close to the ground, and in a tightly controlled environment. As a result, they offer a much safer way to capture aerial photography and videography. Furthermore, the proposed operations represent a safety enhancement to the already safe operations that have been granted by the FAA for the establishment of the AMA National Model Aircraft Safety Code.

Preflight Action Plan

The PIC will follow a comprehensive pre-flight checklist to ensure that the SUAS is in a condition for safe flight. This plan will be improved as needed in order to ensure all known safety precautions and/or safety precautions suggested by the manufacturer are being accounted for.

A. Pre-flight Inspection
    1. Check that the remote control, Phantom battery, range extender, and smartphone are all fully charged.
    2. Verify that the Phantom battery is not swollen or damaged in any way. Clean the contact needles and pads if necessary.
    3. Turn the motor shafts with your fingers and verify they are smooth without excessive play or binding.
    4. Verify that the propellers are mounted correctly. Propellers with a black top should be mounted on the mount shafts that have a black dot. Propellers with a silver top should be mounted on the mount shafts that have a silver dot. Each propeller should spin all the way down onto the motor shaft.
    5. Run finger along the edge of edge blade to check for any rough edges.
    6. Flex both side of the propellers' blades to check for hairline cracks where the blades connect in the center of the propeller.
    7. Verify that the landing gear is secure (not cracked/broken/loose).
    8. Verify that the compass and compass cable is firmly attached to the landing gear.
    9. Verify that the Micro-SD card has been inserted and formatted.
    10. Verify that the damping absorbers are not broken and/or worn.
    11. Verify that the anti-drop pins are in place and locked.
    12. Remove the Gimbal guard and camera lens cap.
    13. Verify that the camera is secure and clean. Inspect the camera ribbon cables for tears and/or signs of wear.
    14. Verify that the smartphone's GPS is enabled.
    15. Set the smartphone to do-not-disturb mode to prevent distractions while flying.

16. Set the smartphone to forget any Wi-Fi networks in range in order to prevent the Wi-Fi connection from changing mid-flight.
17. Verify that the smartphone's audio is on to ensure the low battery warning and other alarms can be heard.

B. Power Up
    1. Verify that S1 and S2 are in the top position on the remote control.
    2. Power on the equipment in the following sequential order:

        a. Range Extender ("System" is blinking green; "Power" is solid green)

        b. Remote Control (2 beeps to indicate it's in FCC mode)

        c. Insert and start the Phantom battery.

    3. Watch the Phantom LED startup sequence for abnormal indications. The rear LEDs should blink green for at least 10-15 seconds to indicate that it locked onto 6+ satellites and has marked the home point (for use by the failsafe feature).
    4. Calibrate the Phantom's compass.
    5. Place the Phantom on an open, flat ground with the battery indicators facing towards the PIC at least 10 feet away.

C. DJI Vision Application
    1. Connect the smartphone Wi-Fi to the range extender.
    2. Launch the "DJI Vision" application on the smartphone.

        a. Verify that the Wi-Fi connection is "Phantom-#####" and is marked with a green dot.

        b. Verify the number of satellites is 6+.

        c. Verify the Wi-Fi signal strength.

        d. Verify that the Phantom and range extender batteries are reporting a full charge.

        e. Verify that both the PIC's and Phantom's location is the same before taking off to ensure the home point has been accurately marked.

        f. Verify the location of the Phantom in the "Flight Radar". If it's not in the correct position/direction and/or shows a distance of "N/A", it did not mark the home point.

g. Use the "Find my Phantom" feature to ensure the blue (home point location) and red (Phantom location) dots are in the same location on the screen.

D. Ready to Fly
1. Verify that the remote control antenna is perpendicular to the ground (pointing skyward).
2. Verify that the front, flat face of the range extender is pointed toward the Phantom.
3. Verify that the rear LEDs are still slowly blinking green and still connected to 6+ satellites.
4. Start the Phantom motors using the CSC command on the remote control.
5. Verify that the motors are functioning normally, are not making any unusual noises, and are all spinning at the same speed.
6. Verify that the area is still clear of obstructions, people, power lines, etc.
7. Take off and hover at about 6-8 feet above the takeoff point to verify that the Phantom has a solid GPS lock. If any abnormalities are noticed (drifting, flying in circles, etc.), land immediately and repeat the "Pre-flight Inspection" and "Power Up" sequences.
8. Verify that the Phantom holds a steady position while yawing 360 degrees.
9. Verify that the Phantom response appropriately to all controls – yaw left/right, pitch forward/backward, roll left/right, and throttle up/down.

Preventative Maintenance

A comprehensive preventative maintenance plan will be followed in order to ensure the SUAS's software is up-to-date, the batteries are in good health, and the aircraft itself is always ready for safe flight. (Attachment: See the "Preventive Maintenance Checklist" on page 41 of the attached "PhantomGuide.pdf" document).

Public Interest

Granting this exemption would benefit the public as a whole. SUASs offer a strong equivalent level of safety, a reduction in environmental impacts, and are free from the harmful emissions associated with the manned aircraft that are currently used for aerial photography and videography. Due to the size of the SUAS and the tightly controlled and limited airspace in which the SUAS will operate, approval of this application presents no risk to the public. Furthermore, the public will be able to legally acquire aerial photography and videography to help in, but not limited to, advertising homes for sale, advertising uninhabited home lots, use of photos and video as an aid when researching homes for sale on the market, or safely accessing high and/or awkward areas of a home's exterior to assess damage that needs to be repaired.

Privacy

Since the areas being photographed or filmed will be on private property, accessed only after given written and/or oral consent by the property owner(s), and clear of all people, except for the PIC and the PIC's helper(s), approval of this application presents no risk to the public privacy.

National Security

Due to the size of the SUAS and the tightly controlled and limited airspace in which the SUAS will operate, approval of this application presents no risk to national security.

Requested Exemptions

FP AeroSolutions, LLC requests exemption from the following regulations since it's not possible to fully comply with them, and since attempting to follow them for the purposes of operating a SUAS would be a burden:

Airworthiness Certificates

14 CFR, Subpart H

Part 21 covers certification procedures for products and parts. Subpart H specifies requirements for Airworthiness Certificates for various aircraft types. Small unmanned aircraft systems are not specifically called out and addressed in these rules. FP AeroSolutions, LLC will, in lieu of airworthiness certification by aforementioned rule, if exemption is granted, ensure that the Phantom 2 Vision+ system is in compliance with its operating documents as described herein. The PIC will assure that all Preflight Checks are completed and documented and thee is full compliance with all manufacturer's operation and maintenance documents. Due to consideration of the size, weight, speed, and limited operating area associated with FP AeroSolutions, LLC's proposed Phantom 2 Vision+, we believe it will not create a hazard to users of the National Airspace System (NAS) or the public. Therefore, a request is made for exemption from 14 CFR part 21, and any associated noise certification and testing requirements of part 36.

Private pilot privileges and limitations: Pilot in command

14 CFR 61.113 (a)

Under current regulations, civil operations for compensation or hire require a PIC holding a commercial pilot certificate per 14 CFR Part 61. Based on the Private Pilot limitations in accordance with pertinent parts of 14 CFR §61.113(a), a pilot holding a Private Pilot certificate cannot act as a PIC of an aircraft for compensation or hire. However, in Grant of Exemption No. 11062

to Astraeus Aerial (Astraeus), the FAA determined that a PIC with a private pilot certificate operating the Astraeus UAS would not adversely affect operations in the NAS or present a hazard to persons or property on the ground.

FP AeroSolutions, LLC operation will not differ significantly from the situation described in Grant of Exemption No. 11062 (Astraeus Aerial). FP AeroSolutions, LLC plans to operate over private property with controlled access in the NAS. With the similar nature of the proposed operating environment to that of Astraeus, the parallel nature of Private Pilot aeronautical knowledge requirements to those of commercial requirements [ref: Exemption No. 11062], and the airmanship skills necessary to operate the UAS, FP AeroSolutions, LLC believes that the additional airmanship experience of a commercially certificated pilot would not correlate to the airmanship skills necessary for the specific proposed operations. Therefore, FP AeroSolutions, LLC PICs will hold a minimum of a private pilot certificate and a third-class airman medical certificate.

Airworthiness required for operation

14 CFR 91.7(a)

If the exemption from 14 CFR 21, Subpart H (item 1 above) is granted, no airworthiness certificate will be required. On this basis, exemption from 14 CFR 91.7 (a) is requested, presuming that airworthy condition by definition in the rule means having an airworthiness certificate. FP AeroSolutions, LLC will, in lieu of airworthiness certification by 14 CFR 21, ensure that the Phantom 2 Vision+ system is in compliance with its operating documents as described herein. The PIC will assure that all Preflight Checks are completed and documented and execute full compliance with all manufacturer's operation and maintenance documents.

Flight crewmember at stations

14 CFR 91.105

This part requires certain actions by onboard crewmembers. Since the Phantom is unmanned, an exemption from this rule is requested.

Minimum Safe Altitudes

14 CFR 91.119(c)

This regulation requires all operation to remain no closer than 500 feet from persons, vessels, vehicles, and structures. FP AeroSolutions, LLC requires relief from § 91.119(c) is because all operations will be conducted below 400 feet AGL and may be operated closer than 500 feet from persons, vessels,

vehicles, and structures as described above.

Prior to conducting UAS specific operations, all persons not essential to flight operations (nonparticipating persons) must remain at appropriate distances. In open areas, the UA will remain 500 feet from all persons other than essential flight personnel (i.e. the PIC and VO). If barriers or structures are present that can sufficiently protect nonparticipating persons from debris in the event of an accident then the UA may operate closer than 500 feet to persons afforded such protection. FP AeroSolutions, LLC will 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. The primary concern, when considering how to immediately cease operations, is the safety of those nonparticipating persons. Operations may be conducted closer than 500 feet to vessels, vehicles and structures when the land owner/controller grants such permission and the PIC makes a safety assessment of the risk of operating closer to those objects.

Altimeter settings

14 CFR 91.121

This regulation requires each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set "...to the elevation of the departure airport or an appropriate altimeter setting available before departure." As the SUAS may not have a barometric altimeter, but instead a GPS altitude read out, an exemption may be needed. An equivalent level of safety will be achieved by the operator by confirming the altitude of the launch site shown on the GPS altitude indicator before flight.

Fuel Requirements for Flight in VFR Conditions

14 CFR 91.151 (a)

This regulation 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."

Similar UAS-specific relief has been granted an Exemption Nos. 8811, 10808, and 10673 for daytime, Visual Flight Rules (VFR) conditions. FP AeroSolutions, LLC UAS provides low battery warnings at 30% capacity that indicate the PIC must command the UA's return to the launch point when low battery capacity voltage is reached. The UAS also provides critical low battery warnings at 15% battery capacity indicating that the UA will begin to descend and land automatically. These factors provide an equivalent level of

safety by prohibiting the from beginning a flight unless (considering wind and forecast weather conditions) there is enough power to fly at normal cruising speed to the intended landing point and land the UA with 30% battery power remaining.

Maintenance Inspections

14 CFR 91.405 (a); 14 CFR 91.407 (a)(1); 14 CFR 91.409 (a)(1) and (2); 14 CFR 91.417 (a) and (b)

These regulations require that an aircraft operator or owner "shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided 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.

Given that these sections and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply. Maintenance will be accomplished by the operator pursuant to the aforementioned Phantom user manual and guide. An equivalent level of safety will be achieved because these small SUASs are very limited in size, will carry a small payload, and operate only in restricted areas for limited periods of time. If mechanical issues arise, the SUAS can land immediately and will be operating from no higher than 400 feet AGL. As outlined in the aforementioned Pre-flight Action Plan, the operator will ensure that the SUAS is in working order prior to initiating flight and perform maintenance as required. Moreover, the operator is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

In accordance with 14 CFR Part 11, the following summary is provided for publication in the Federal Register:

The applicant seeks an exemption from the following rules: 14 CFR Part 21, Subpart H; 14 CFR 61.113 (a); 14 CFR 91.7(a); 14 CFR 91.105; 14 CFR 91.119(a); 14 CFR 91.121; 14 CFR 91.151; 14 CFR 91.405 (a); 14 CFR 91.407 (a)(1); 14 CFR 91.409 (a)(1) and (2); 14 CFR 91.417 (a) and (b) to commercially operate small unmanned aircraft systems (55 lbs. or less) in order to safely and legally capture aerial photography and videography for use by homeowners, realtors, builders, contractors, and/or inspectors.

The operation of SUASs conducted in the strict conditions outlined above, will provide an equivalent and/or greater level of safety supporting the grant of the exemptions requested herein, including exempting the applicant from the requirements of Part 21 and allowing commercial operations. These lightweight aircraft operate at slow speeds, close to the ground, and in a sterile environment, and as a result, are far safer than existing operations conducted with helicopters

operating in close proximity to the ground, people, or other buildings in the vicinity.

Given the small size of the SUASs involved, the slow speed at which they must be operated in order to capture photos and videos, and the restricted environment within which they will operate, the Phantom demonstrates that it can be operated within an equivalent level of safety in which Congress envisioned that the FAA must, by exemption, allow commercial operations of SUASs to commence immediately. Also, due to the size of the SUASs and the restricted areas in which the relevant SUASs will operate, approval of this application presents no threat to national security. Given the clear direction in Section 333 of the Reform Act, the authority contained in the Federal Aviation Act, the strong equivalent level of safety surrounding the proposed operations, the significant public benefit – including enhanced safety, reduction in environmental impacts, no emissions, ability to legally obtain aerial photography and videography services – the grant of the requested exemptions is in the public interest. Accordingly, FP AeroSolutions, LLC respectfully requests that the FAA grant the requested exemption without delay.

Satisfaction of the criteria provided in Section 333 of the Reform Act – size, weight, speed, operating capability, proximity to airports and populated areas, operation within the visual line of sight, public safety, and national security – provide more than adequate justification to grant FP AeroSolutions, LLC the requested exemption, allowing for commercial operations as described herewith.

Summary for Publication in Federal Register

Petition for Exemption

Docket No.: FAA-2015-xxxx

Petitioner: FP AeroSolutions, LLC

Sections of 14 CFR

Description of Relief Sought: The petitioner is seeking an exemption to utilize an unmanned aircraft system (UAS) to accomplish aerial photography and videography services to homeowners, realtors, builders, contractors, and/or inspectors for use in, but not limited to, real estate marketing and safer inspections of home and building exteriors.

Sincerely,

/s/ Nicholas Flom

_____

Nicholas Flom Managing Partner, FP AeroSolutions, LLC

Enclosures (4)