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

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

September 8, 2015

Exemption No. 12780
Regulatory Docket No. FAA−2015−2045

Mr. Peter P. Miller
4981 Mallet Hill Drive
Cincinnati, OH 45244

Dear Mr. Miller:

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

By letters dated May 20, 2015, and August 9, 2015, you petitioned the Federal Aviation Administration (FAA) for an exemption. You requested to operate an unmanned aircraft system (UAS) to conduct aerial photography, videography, and mapping.

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 DJI Phantom 3.

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, Mr. Peter P. Miller is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, Mr. Peter P. Miller is hereafter referred to as the operator.

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

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

1. Operations authorized by this grant of exemption are limited to the DJI Phantom 3 when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

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

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

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

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

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

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations herein take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The

operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS−80) may be contacted if questions arise regarding updates or revisions to the operating documents.

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

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

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

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

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

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

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's PICs and VOs

(training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. However, training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

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

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

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

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

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

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

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

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

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

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

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

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

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

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

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

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

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

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

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

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

This exemption terminates on September 30, 2017, unless sooner superseded or rescinded.

Sincerely,

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

Enclosures

Peter P. Miller
4981 Mallet Hill Dr
Cincinnati, Oh 45244

U.S. Department of Transportation,
Docket Operations West Building Ground Floor, Room W12-140
1200 New Jersey Avenue, SE
Washington, DC 20590

05/20/2015

Petition for 333 Exemption

I, Peter P. Miller, Airline Transport Pilot (airman certificate #3028069), of 4981 Mallet Hill Dr. Cincinnati Oh. 45244, am petitioning the Federal Aviation Administration (FAA) for an exemption from part 21, subpart H; and Sections 45.23(b), 91.9(b)(2), 91.119, 91.121, 91.151(a), 91.203(a) and (b), 91.405(a), 91.407(a)(1), 91.409(a)(2), and 91.417(a) and (b) of Title 14, Code of Federal Regulations (14 CFR). This proposed exemption would allow me to operate a DJI Phantom Vision 3 Quad Copter Unmanned Aerial System (UAS) for the purpose of aerial mapping, videographer and real estate photography. The use of a UAS for these activities will have a substantial social benefit. It will bring an over-head perspective to future customers that were previously only possible through the prohibitively expensive use of rotorcraft and fixed wing aircraft with expensive camera equipment. I would bring this service at an affordable price and due to the simple nature of the UAS, with substantial savings.

Due to the ever-improving nature of this technology a new UAS can become obsolete within a few months of release. I am also seeking an exemption in addition the to one listed above, to include other unmanned aerial systems (UAS) that meet the operational limitations outlined in the notice of proposed rulemaking (NPRM) pertaining to the operation of small unmanned aircraft systems in proposed part 107 to Title 14 Code of Federal Regulations (14 CFR).

Safety

I will utilize my knowledge as a professional pilot to maintain the highest level of safety during the proposed use of the UAS. Flight would consist of three parts: preflight, flight and post flight.

The preflight will consist of extensive inspections of the area, the UAS and the airspace in which it will be operating. A detailed inspection of the UAS will be conducted and all major systems will be examined, including power plant, airframe and controls. Any discrepancy will be noted and if the discrepancy affects the safety of the flight, the flight will not commence.

Operations will only commence in reasonably safe environments that will be strictly controlled during the flight of the UAS. The area will be surveyed for power lines,

elevated lights and other property with the potential to affect the safety of the flight. There will be no flights within the proximity of active airports without first contacting the appropriate agencies or authorities to ensure the highest level of safety and compliance with all regulations. Operations will also not commence where there is a reasonable possibility of inadvertent physical contact with the populace.

During the flight portion of the operation, safety will be the primary concern. Given the size, weight, speed and limited operating area of the UAS; flight will be inherently safe. The UAS will not be operated above individuals not associated with its operation and care will be given to avoid property that was noted during the preflight inspection of the area.

During the post-flight debrief, all individuals associated with the operation will evaluate the success of the operation and address any concerns brought forward about the safety of the flight. Any pertinent issues will be noted and action will be taken to ensure the safety of future flights.

Exemptions from regulations

All proposed exemptions from regulations are listed below and are accompanied by reasoning as to why it would be unreasonable to comply with the regulation.

- 14 CFR § 21 Subpart H: Airworthiness Certificates and 91.203 (a) and (b): Certifications required
  - Given the size, weight, speed, and limited operating area associated with the aircraft to be utilized, an exemption is requested and would meet the requirements for an equivalent level of safety under 14 CFR part 11 and Section 333 of P.L. 112-95 (Section 333)
- 14 CFR § 45.23: Display of marks; general

o An exemption is requested because the UAS has no cabin, cockpit or pilot station on which to display certain words or phrases. Furthermore, is would be unreasonable to mark the aircraft with 2 inch lettering since the airframe has dimensions smaller than the minimal lettering requirement. I will place the word "Experimental" on the airframe of the UAS as required by § 45.29(f) so that anyone assisting as a spotter and I will see the markings.

• 14 CFR § 91.9 (b) (2): Civil aircraft flight manual, marking and placard requirements

o An exemption is requested from the cited regulations because the UAS manufacturer does not supply a flight manual that contains information found in manuals supplied by manufacturers of traditional aircraft. Also, due to the size, weight, speed and operating area of the aircraft to be utilized it would be unrealistic to expect it to.

• 14 CFR § 91.119: Minimum safe altitudes

o An exemption is requested from the cited regulations due to the purpose that the UAS being used was created for. This UAS is designed for use in an environment that is contrary to this regulation.

Also, the UAS would not be operated at an altitude of more than 500 feet above the surface, as to not interfere with any potential air traffic. • 14 CFR § 91.121: Altimeter settings

o An exemption is requested because no pitot static system is installed in the aircraft and due to the altitudes is operates at, adherence to this regulation would be unrealistic and unnecessary. Also, GPS position information is transmitted to the aircraft controller, providing much more accurate information than what would be shown by a traditional altimeter.

• 14 CFR § 91.151: Fuel requirements for flight in VFR conditions

o Due to the nature of the aircraft being used, adherence to the regulation would be unrealistic. The UAS has an average flight time of approximately 25 minutes and a "return to home" function in the event of an impending power failure. Therefore, an exemption from the cited regulation is requested.

• 14 CFR § 91.405(a): Maintenance required, 91.407(a)(1): Operation after maintenance, preventative maintenance, rebuilding or alteration, 91.409 (a)(2): Inspections, 91.417(a) and (b): Maintenance records

o Exemptions are requested from the cited maintenance regulations because they only apply to traditional aircraft with an airworthiness certificate.

Qualifications and closing

By granting me a section 333 exemption I will be able to bring a service to my community that before, was associated with high cost and high environmental impact. As a professional pilot, the skills and knowledge that I have gained through training and experience will add an additional level of safety to the operation of the UAS. Coupled with an in-depth knowledge of airspace, Federal Aviation Regulations (FARs), safety of flight and science of flight information I believe there should be no question as to the soundness of my petition for exemption.

*Note

All information regarding the DJI Phantom 3 quad copter can be found on the manufacturers webpage below. Model specifications will be submitted with this document for ease of reference.

http://www.dji.com/product/Phantom .

Sincerely,

Peter P. Miller