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

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

August 18, 2015

Exemption No. 12487
Regulatory Docket No. FAA–2015–0569

Mr. Jose A. Cancel
Top View Aerial Photography, LLC
194 Glenellen Road
West Roxbury, MA 02132

Dear Mr. Cancel:

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

By letter posted to the public docket on July 10, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Top View Aerial Photography, LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial photography, cinematography, 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 DJI Inspire 1.

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

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

The Basis for Our Decision

You have requested to use a UAS for aerial data collection[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, Top View Aerial 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.

[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, Top View Aerial 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 Inspire 1 when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS−80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.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 August 31, 2017, unless sooner superseded or rescinded.

Sincerely,

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

Enclosures

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U.S. Department of Transportation
Docket Management System
1200 New Jersey Ave. SE
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Re: Exemption Request Section 333 of the FAA Reform Act.

Dear Sir or Madam:

Pursuant of Section 333 of the FAA Modernization and Reform Act of 2012 (the "Reform Act") and 14 CFR part 11, Top View Aerial Photography LLC, operator of an Unmanned Aircraft System (UAS), herby applies for an exemptions from the listed Federal Aviation Regulations to allow commercial operation of its UAS, so 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.

Commercial operation of an UAS, as described herein, which are equipped with camera(s) and sensors, would operate in the following manner:

- Aerial photography and/or video for public and/or private use including real estate, architecture, land surveying, engineering, and other professional activities.
- Aerial video and/or photography for public and/or private use including television, public events, cinematography, and news gathering.
- Aerial inspection/photography or providing live feed to assist with search and rescue operations in case of an emergency or natural disaster only when local authorities has requested it.

The requested exemptions would permit the operation of a UAS under controlled conditions in the national airspace system that would be limited, controlled, predetermined, and will provide safety enhancements to operation. Approval of this exemption will thereby enhance safety and fulfill the Secretary of Transportations (the FAA Administrators) responsibilities to "… establish requirements for the safe operation of such aircraft systems in the national airspace system" Section 333(c) of the Reform Act.

Regulations from which the exemption is requested:

14 CFR Part 21 Subpart H
14 CFR Part 45.23(b)
14 CFR Part 61.113(a) & (b)
14 CFR Part 91.7(a)
14 CFR Part 91.9(b) (2)
14 CFR Part 91.103
14 CFR Part 91.109
14 CFR Part 91.119(c)
14 CFR Part 91.121

14 CFR Part 91.151(a)
14 CFR Part 91.203(a) & (b)
14 CFR Part 91.405(a)
14 CFR Part 91.407(a) (1)
14 CFR Part 91.409(a) (2)
14 CFR Part 91.417(a) & (b)
FAA Policy 8900.277 Paragraph 16 (cXa) and Paragraph 16 (eX1)

Top View Aerial Photography, LLC will operate the DJI Inspire 1, Model T600, with a total weight of 2935g or 6.47lbs. The dimensions are 438mm x 451mm x 301mm or 17.24in x 71.75in x 11.85in. Under still air the maximum speed is no more than 22m/s or 49mph with a cruising speed of 11m/s or 25mph. The DJI Inspire 1 has the ability to hover and move along a vertical and horizontal plane simultaneously. The DJI Inspire 1 has 4 motors, Motor Model DJI 3510, powered by a 6-cell 4500mAh or 5700mAh Lithium Polymer bettery. There are four propellers, Propeller Model DJI 1345, in use. The DJI Inspire 1 will be controlled with two C1 remote controllers (one operates the aircraft and one operates the camera) with an operating frequency of 2.400GHz-2.483GHz. The live video feed will have an operating frequency of 5.728GHZ-5.850GHz. The applicant will operate the UAS in line of sight within a predetermined area owned and/or operated by the property representative.

AIRCRAFT AND EQUIVALENT LEVEL OF SAFETY

The operation limitations propose for an equivalent or higher level of safety because operations will further enhance the safety of the person and/or property using conventional aircraft.

These limitations and conditions to which the applicant agrees to adhere to when conducting commercial operations under the FAA issued exemptions as set forth in the Flight Operations Manual (FOM) include:

- The UAS weight is less than 55lbs.
- The UAS will have a maximum operating speed of no more than 50mph.
- Flights will be operated within line of sight of the UAS pilot and/or visual observer (VO).
- Maximum flight time for each operational flight will be 25 minutes. Flights will be terminated at 25% battery reserve or 25 minutes of flight time, whichever comes first.
- Flights will be operated at an altitude of no more than 400 feet Above Ground Level (AGL).
- A preflight meeting will be held regarding the planned UAS operations prior to each flight. For each commercial operation a minimum crew will consist of the UAS Pilot (PIC), Visual Observer (VO) and may include a Camera Operator. All members present will sign a document verifying attendance of pre and post operation meeting.
- All flights will occur under Visual Flight Rules Meteorological Conditions (VMC) only.
- The flights will not occur any closer than a 5 mile radius of the geographic center/Airport Reference Point (ARP) of a tower controlled or uncontrolled airport.
- If operations will be within 5 mile radius of geographic center/ Airport Reference Point (ARP) of a tower controlled or uncontrolled airport, the airfield operator and airfield traffic control tower (when applicable) will be contacted no later than 24 hours prior to flight operations, advising

them of the estimated flight time, flight duration, elevation of flight and other relevant information.

- All required permissions and permits will be obtained from appropriate state, county, or city jurisdictions, including local law enforcement, fire, or other appropriate governmental agencies no later than 24 hours prior to operations.
- Written and/or electronic permission from the relevant property owners will be obtained prior to operations. Consenting persons will be allowed within 100 feet of the flight operation, and may be reduced to a radius of 30 feet based upon equivalent level of safety determination, as required under the FOM.
- The UAS pilot will be trained in advance for the safe operation of the UAS to be operated. This will include operation of the UAS both in normal and emergency modes of operation and will include familiarization with the operation manual published by the UAS manufacturer. Training will also include types of maneuvers to be performed and the safe operation in relation to persons, property, and applicable airspace.
- The UAS Pilot and VO will be able to communicate by voice or radio at all times.
- If the UAS loses GPS signal or communication with the remote controller, the UAS has the capability to return to a predetermined location autonomously.
- The UAS has the capability to abort a flight in case of emergencies.

14 CFR Part 21, Subpart H: Airworthiness Certificates 14 CFR Part 91.203(a) (1)

Subpart H, entitled Airworthiness Certificates, establishes the procedural requirements for the issuance of airworthiness certificates as required by 14 CFR Part 91.203(a) (1). Given the size and limited operating area associated with the UAS to be utilized by Top View Aerial Photography, LLC, an exemption from Part 21 Subpart H meets the requirements of an equivalent level of safety under Part 11 and Section 333 of the Reform Act.

The UAS to be operated has a total weight of 6.47lbs fully loaded and does not carry a pilot or passengers. The UAS does not carry explosive materials or flammable liquid fuels and is powered exclusively by a 4500mAh or 5700mAh Lithium Polymer battery. Under this exemption, appropriate governmental and local public safety agencies will have 24 hours advanced notice of all operations and will be tightly monitored thereby providing a greater degree of safety to the public. Under the conditions proposed, the UAS will be safer than a conventional aircraft operating with an airworthiness certificate without the restrictions and conditions proposed. Also, the UAS demonstrates no credible threat to national security due to its size, operating speed, flight restrictions, lack of exploding materials, lack of flammable liquids and inability to carry a substantial external load.

14 CFR Part 45.23(b)

The regulation requires: When marks include only the roman capital letter “N” and the registration number is displayed on limited, restricted or light-sport category aircraft or experimental or provisional certificate aircraft, the operator must also display on the aircraft near each entrance of the cabin, cockpit, or pilot station, in letters not less than 2 inches n or more than 6 inches in height the words “limited”, ”restricted”, ”light-sport”, ”experimental” or “provisional” as applicable.

Even though the UAS will have no airworthiness certificate, an exemption may be needed as the UAS will have no entrance to the cabin, cockpit or pilot station on which the word "experimental" can be placed. Given the size of the UAS, two inch lettering will be impossible. The word "experimental" will be placed on the fuselage in compliance with Part 45.29(f).

The equivalent level of safety will be provided by having the UAS marked on its fuselage as required by Part 45.29(f) where the pilot, observer and others working with the UAS will see the identification of the UAS as "experimental".

14 CFR Part 61.113(a) (b): Private and Commercial Pilot Privilege and Limitations

Currently, there are no applicable areas identified for UAS in either the private or commercial sector, therefore an exemption is required to conduct commercial operations.

Under Part 61.113(a) (b) private pilots are limited to non-commercial operations; however an equivalent level of safety can be achieved by current regulations because the DJI Inspire 1 UAS does not carry any pilot or passengers. Furthermore, although a pilot license is helpful, it will not ensure remote control piloting skills. The risks of operating a UAS are far less than the risk inherent in the commercial activities outlined in 14 CFR Part 61, thus an exemption is requested from Part 61.113 Private Pilot Privileges and Limitations.

In regards to the UAS operational training, the applicant has flown numerous practice flights as a hobbyist under different temperatures and climate conditions. The applicant has also gain significant experience with the UAS' performance under various emergency landing situations. Presently the applicant is familiarizing himself with the Pilot's Handbook of Aeronautical Knowledge, FAA-H-8083-25A-Single PDF and is eager to participate in any future UAS airman certification courses that may be offered.

The applicant sets forth a request for a 120 day temporary airman certificate in accordance with Part 63.13 to allow time to obtain a private pilot certificate or to allow the FAA time to establish minimum UAS airman certification status.

14 CFR Part 91.7(a): Civil Aircraft Airworthiness

The regulation requires that no person may operate a civil aircraft unless it is in airworthy condition. As there will be no airworthiness certificate issued for the aircraft, should this exemption be granted, no FAA regulatory standard will exist for determining airworthiness. Given the size of the aircraft, through maintenance and use of safety check list prior to each flight, equivalent level of safety will be provided.

14 CFR Part 91.103: Preflight Action

This regulation requires each pilot in command to take certain actions before flight to ensure the safety of the flight. As FAA approved rotorcraft flight manuals will not be provided for the aircraft, an exemption will be needed. The operating pilot will take all actions as stated in the FOM in Section 4 under Normal procedures including but not limited to reviewing the weather, flight battery requirements, landing and takeoff distances, and aircraft performance data before initiation of flight.

14 CFR Part 91.109: Flight Instruction

This regulation provides that no person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless the aircraft has fully functioning dual controls. UAS and remotely controlled aircraft, by their design, do not have fully functional dual controls. Flight control is accomplished through the use of a control box that communicates with the aircraft via radio communications. The FAA has approved exemptions for flight training without fully functional dual controls for a number of aircrafts and for flight instruction in experimental aircraft. The equivalent level of safety will be provided by the fact that neither a pilot nor a passenger will be carried in the aircraft and by the size and speed of the aircraft.

14 CFR Part 91.119(c) Minimum Safe Altitudes

Section 91.119(c) establishes safe altitudes for operation of civil aircraft. Section 91.119(d) allows helicopters to be operated at less the minimums prescribed, provided the person operating the helicopter complies with any route or altitudes prescribed for helicopters by the FAA. As this exemption is for a helicopter and the exemption request authority to operate at altitudes up to 400 feet AGL or not more than 200 feet above an elevated platform from which filming is planned, an exemption may be needed to allow such operations. As set forth herein, the UAS will never operate higher than 400 feet AGL with the exception that in circumstances where the UAS is used to survey or photograph a structure whose height exceeds 400 feet AGL, the UAS will not be operated more than 200 feet above the highest point on the structure. It will however, be operated in a restricted area with a secured perimeter, where buildings and people will not be exposed to operations without their pre-obtained consent.

The equivalent level of safety will be achieved given the size, weight, speed of the UAS as well as the location where it is operated. No flight will be taken without permission of the property owner or local officials. Because of the advance notice to the property owner and participants in the filming/photography activity, all affected individuals will be aware of planned flight operations. Compared to flight operations with aircraft or rotorcraft weighting far more than the maximum 55lbs. proposed herein and the lack of flammable fuel, any risk associated with these operations is far less than those presently presented with conventional aircraft operating at or below 500 feet AGL. In addition, the low-altitude operations of the UAS will ensure separation between these UAS operations and the operations of a conventional aircraft that must comply with Section 91.119.

14 CFR Part 91.121 Altimeter Settings:

This regulation requires each person operating an aircraft to maintain cruising altitude by reference to an altimeter set "…to the elevation of the departure airport or an appropriate altimeter setting available before departure." As the UAS 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 achived by the operator, pursuant to the safety check list and live flight data monitoring and confirming the altitude of the launch site shown on the GPS altitude indicator before flight.

14 CFR Part 91.151(a): Fuel Requirements for Flight in VFR Conditions

Section 91.151(a) 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 power of the UAS provides approximately 25 minutes of powered flight. To meet the 30 minutes reserve requirement, UAS flights would be limited to approximately 10 minutes in length. Given the limitations of the UAS' proposed flight area and the location of its proposed operations within a predetermined area, a longer time frame for flight in daylight or twilight VFR conditions is reasonable.

Applicant believes than an exemption from 14 CFR 91.151(a) falls within the scope of prior exemptions. Operating the UAS in a tightly controlled area where only people and property owners or official representatives who have signed waivers will be allowed, with less than 30 minutes of reserve fuel, does not engender the types of risks that section 91.151(a) was intended to alleviate, given the size and speed of a small UAS. Additionally, limiting UAS flights to 10 minutes would greatly reduce the utility for which the exemption will be granted. Applicant believes than an equivalent level of safety can be achieved by limiting flight to 30 minutes or 25% battery power, whichever comes first. This restriction would be more than adequate to return the UAS to its landing zone from anywhere in its limited operating area.

14 CFR Part 91.203(a) (b): Carrying Civil Aircraft Certification and Registration.

The regulation provides in part:

(a)Except as provided in Section 91.715, no person may operate a civil aircraft unless it has within it the following: (1) An appropriate and current airworthiness certificate…

(b)No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under Section 91.715, is displayed at the cabin or cockpit entrance so that it is legible to passengers and crew.

The UAS fully loaded weights no more than 55lbs and it is operated without an onboard pilot. As such, there is no ability or place to carry the certification and registration documents or to display them on the UAS.

An equivalent level of safety will be achieved by keeping the documents at the ground control point where the ground crew will have immediate access to them, to the extent they are applicable to the UAS.

14 CFR Part 91.405(a); 407(a)(1); 409(a)(2); 417(a)&(b): Maintenance Inspections

These regulations require than 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 provided in paragraph (c) of this section, have discrepancies as prescribed in part 43 of this chapter…", and others shall inspect or maintain the aircraft in compliance with part 43.

Given that these section and part43 apply only to aircraft with an airworthiness certificate, these sections will not apply to the applicant. Maintenance will be accomplished be accomplished by the operator pursuant to the flight manual and operating handbook. An equivalent level of safety will be achieved because the UAS is very limited in size and will carry a small payload and operate only in restricted areas for a limited period of time. If mechanical issues arise, the UAS can land immediately and will be operating from no higher than 400 feet AGL. The operator will ensure that the UAS is in working order prior to initiating flight, perform required maintenance, and keep a log of any maintenance performed. Moreover, the operator

is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

An equivalent level of safety will be achieved because maintenance and inspections will be performed in accordance with the UAS manufacturer's user manual. The operator will ensure that the UAS is in working order prior to initiating flight and perform required maintenance as needed.

8900.227 Paragraph 16(cXa): PIC Medical and Paragraph 16(eX1) Observer Medical

These regulations require that both the PIC and the VO have a valid FAA second-class medical certificate issued under part 67 in order to perform as a PIC or VO. Requiring the crew to meet the same medical requirements as a commercial pilot carrying passengers in a large aircraft is an unnecessary burden. Given that the risk of both the PIC and VO becoming incapacitated at the same time and suddenly is very low, the proposes that the minimum medical requirements be vision corrected to 20/20 and a valid state issued driver's license. An equivalent level of safety will be achieved because the UAS operates at low altitude and can brought in for landing in a very short period of time if incapacitation was suspected. Furthermore, DJI Inspire 1 is equipped with an automatic return home feature that would provide a final level of safety.

Sincerely,

Jose A. Cancel

Top View Aerial Photography, LLC
Att: Jose A. Cancel
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U.S. Department of Transportation
Docket Management System
1200 New Jersey Ave. SE
Washington, DC 20590

Re: Exemption Request Section 333 of the FAA Reform Act.

Dear Sir or Madam:

Granting an exemption for Top View Aerial Photography LLC. to utilize UAS for aerial photography and videography for professional, private and for public service activities, including but not limited to real estate, architecture, land survey, public events, cinematography, news gathering, search and rescue, and fire safety would provide a great benefit to the public. For example, aerial photography for use in real estate marketing has been utilized for several years through the use of manned fixed wing aircraft and helicopters. Photography and videography using these means has traditionally been cost prohibitive, especially for the small business owner. There are also limitations of terrain and the risks of low altitude flying. The use of a UAS is much more affordable to the public and can provide owners an advantage in marketing their property. Statistics have shown that properties that market using aerial photography sell at a much faster rate than those that do not. Another advantage to using a small UAS as opposed to a larger manned aircraft is public safety. When used properly following FAA regulations a small UAS will pose no threat to the public. The use of UAS eliminates the need for combustible fuel thus making it safer and it also minimizes ecological damage. The use of a UAS for the sale of properties can benefit potential buyers in a variety of ways. It allows encompassing views of the entire property and land, views of the neighborhood and surrounding area, including the homes proximity to amenities, views of civic developments or local improvement districts that the buyer's property taxes might contribute to, and be useful for property maps and surveys. As you can see, there are many benefits to the use of UAS to the public as a whole.

Another area Top View Aerial Photography would like to utilize UAS is Public Safety. As a 15 year veteran of the Boston fire Department I have witnessed many hazardous conditions that would have benefited from the use of a UAS. For example, during large brush fires, in heavily wooded area, many departments rely on other agencies, like The State Police, to utilize their Helicopter to gather information which helps put together a strategy to effectively stop the spread of the fire and suppress the fire. There are many disadvantages to using this method. One disadvantage is the economic burden to the local government to use a helicopter. Another disadvantage is communication. Once the pilot gathers information, he then relays it to his dispatch center; the dispatch center then relays the information to a representative at the fire scene who in turn relays the information to the commanding officer of the incident. Because of the unpredictability of these types of incident, there is a risk of conditions changing before the message arrives to the commanding officer, thus putting firefighters in grave danger. The use of UAS has many benefits in these situations. The economic burden to local agencies is greatly diminished with the use of a UAS. Furthermore, the use of live video feed ensures that the commanding officer would be seeing the changing conditions of the incident as they happen thus being able to revise strategies quickly and lessening the risk to firefighters. As with other uses, when used properly following FAA regulations a small UAS will pose no threat to the public. The use of UAS eliminates the need for combustible fuel thus making it safer and it also minimizes ecological damage.

In summary, the use of UAS would greatly benefit the public as a whole. Some of these benefits include:

- Economic growth, by allowing small business the opportunity to use aerial photography and videography without the economic burden of a fixed wing aircraft or helicopter. Businesses can use this technology for innovative marketing strategies to expand their reach.
- Environmentally friendly, because the UAS is a battery powered aircraft, there is little impact on the environment as compared to an fixed wing aircraft or helicopter which have a considerable carbon footprint.
- Public safety, because our UAS weights less than 10 lbs, the risk to the public or property is very minimal in the event of any failure as compared to a fixed wing aircraft or helicopter.

- Public interest, by allowing more businesses to use this technology due to its low cost, will allow those businesses to provide more for their customers. As in real estate, potential buyers would benefit from aerial images thus allowing them to make an informed decision on their purchase.
- Economic burden, the use of UAS could greatly reduce the economic burden to local governments and private parties who depend on the use of this technology.
- Live video feed, in public safety incidents, a live video feed could be instrumental in allowing commanding officers to make quick decisions to lessen the risks to public safety officers and the public in general. Fires, building collapse, floods, search and rescue, all incidents that could greatly benefit from this technology.
- Aircraft, our UAS are made with the latest technology in the market. Features like "Return to Home" ensure that the UAS returns to a safe location in case of signal or battery failure. Furthermore, given that the UAS operates at low altitude, it can be brought in for landing in a very short period of time without the need for a runway.

Top View Aerial Photography's mission is to operate in the safest manner while following all FAA's regulations. Our goal is to bring this technology to more people and educate the public in the safe use of UAS.

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Jose A. Cancel