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

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

May 21, 2015

Exemption No. 11648
Regulatory Docket No. FAA–2015–0696

Mr. David W. Mansen
RD Group
10736 Vista Heights Boulevard
Fort Worth, TX 76108

Dear Mr. Mansen:

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 March 13, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of RD Group (hereinafter petitioner or operator) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct aerial video and photography services for real estate and construction, surveying and inspection, marine and wildlife, agriculture and for special events.

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 2 Vision+

In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection. 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, RD Group 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, RD Group is hereafter referred to as the operator.

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

1. Operations authorized by this grant of exemption are limited to the DJI Phantom 2 Vision+ 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 5 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 May 31, 2017, unless sooner superseded or rescinded.

Sincerely,

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

RD Group

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Section 333
Exemption Request

13 March 2015

This Section 333 Exemption request may be published in the Federal Docket.	Document No.: DP1001
	Initial Release: 29 Sep 2014
	Revision Number: 01
	Revision Date: 13 Mar 2015

To: Docket Operations M-30
US Department of Transportation (DOT)
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West Building Ground Floor
Washington, DC 20590-0001

From: RD Group
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Date: 13 Mar 2015

Re: Exemption request pursuant to Section 333 of the FAA Modernization and Reform Act of 2012

In accordance with the FAA Modernization and Reform Act of 2012 (FMRA), Section 333 Special Rules for Certain Unmanned Aircraft Systems, RD Group seeks an exemption from FAA regulations restricting COMMERCIAL operation of small Unmanned Aircraft System (sUAS).

RD Group specifically requests relief from the listed FAA Regulations to permit COMMERCIAL operation of small Unmanned Aircraft System (sUAS) under the conditions outlined herein or as may be established by the FAA.

RD Group also request relief from such other FARS as the FAA deems appropriate to enable RD Group's requested operations.

The FAA make any modifications it determines necessary in the granting of this Section 333 Exemption request.

FAA has permission to utilize any or all RD Group proprietary documents as necessary to facilitate approval of this requested exemption.

RD Group seeks relief to permit commercial operations utilizing sUAS to conduct aerial video and photography services for real estate and construction, surveying and inspection, marine and wildlife, agriculture and for special events.

We will gladly discuss any changes, modifications or amendments to our manuals, procedures or practices to satisfy FAA requirements for approval of this exemption.

Thank you,

David w Mansen

1) Table of Contents

Table of Contents

2) Abbreviations Used

sUAS	small Unmanned Aircraft System	Unmanned Aircraft – Light weight – less than 55 Lbs. Gross Vehicle weight including payload
FPV	First Person View	FPV is the video feed from the camera mounted in the sUAS that is displayed to the Flight Crew on the ground.
AGL	Above Ground Level	Above Ground Level
NAS	National Air Space	National Air Space
Flight Crew	Flight Crew	Flight Operator (Pilot) Visual Observer (VO)
PIC	Pilot in Command	Pilot in Command
VO	Visual Observer	Member of the Flight Crew. Responsible for visual observation and visual assistance to the Flight Operator (Pilot)
GPS	Global Positioning System	A navigational system using satellite signals to accurately determine a user's location.
AMA	Academy of Model Aeronautics	Academy of Model Aeronautics
FAA	Federal Aviation Administration	Federal Aviation Administration
FAR	Federal Aviation Regulation	Federal Aviation Regulation
AC	Advisory Circular	FAA issued publication to provide guidance for compliance with airworthiness regulations.
FCC	Federal Communications Commission	Federal Communications Commission

3) Overview

In accordance with the FAA Modernization and Reform Act of 2012 (FMRA), Section 333 Special Rules for Certain Unmanned Aircraft Systems, RD Group seeks an exemption from FAA regulations restricting COMMERCIAL operation of small Unmanned Aircraft System (sUAS).

RD Group specifically requests relief from the listed FAA Regulations to permit COMMERCIAL operation of small Unmanned Aircraft System (sUAS) under the conditions outlined herein or as may be established by the FAA.

RD Group also request relief from such other FARS as the FAA deems appropriate to enable RD Group's requested operations.

The FAA make any modifications it determines necessary in the granting of this Section 333 Exemption request.

FAA has permission to utilize any or all RD Group proprietary documents as necessary to facilitate approval of this requested exemption.

Existing FAA Regulations burden RD Group's sUAS operations by preventing RD Group from performing commercial sUAS operations to conduct aerial video and photography services.

RD Group seeks relief to permit commercial operations utilizing sUAS to conduct aerial video and photography services for real estate and construction, surveying and inspection, marine and wildlife, agriculture and for special events.

All RD Group sUAS flights will operate in a tightly controlled area, below 400 feet AGL, and over private or controlled property and with the permission of the property owner.

RD Group seeks relief from these FAA Regulations because:

1) Existing FAA Regulations provide and undue burden upon RD Group's commercial sUAS operations.
   a) RD Group operations are described in detail in section 5 (RD Group)
2) Equivalent Level of Safety
   a) Operation of small Unmanned Aircraft Systems (sUAS) by RD Group with the sUAS Aircraft, sUAS Flight Crew, sUAS Operating Parameters, sUAS Maintenance and sUAS training requirements as outlined in this request for a Section 333 exemption provide an equivalent level of safety
3) Public interest
   a) Granting these requested exemptions is in the public interest.
   b) For the public interest is described in detail in section 11 (For the Good of the Public)

The FAA's authority to issue exemptions from current operating rules and regulations, and the Secretary's authority granted by section 333 of P.L. 112-95 (Special Rules for Certain Unmanned Aircraft Systems) provides an opportunity to authorize certain sUAS operations into the National Airspace System (NAS) prior to implementation of the final sUAS rule.

Granting of this exemption request will permit RD Group to safely and legally utilize sUAS in the NAS.

Overview

* * *

Enclosed are the following documents to support RD Group's Section 333 Exemption request:

1) DJI Phantom User's Manual
2) DJI Phantom Pilot Training Guide

* * *

Safety is achieved through the relentless pursuit of quality training and adherence to FAA Approved Operating Procedures and FAA Regulations.

RD Group adheres to the Academy of Model Aeronautics National Model Aircraft (AMA) Safety Code. A copy of this code is included with this Section 333 Exemption request. All RD Group Flight Operators (Pilots) and Visual Observers (VO) are trained on the standards of this safety code.

Our approach to the safe operation of small Unmanned Aircraft Systems (sUAS) is three fold: Operational Procedures (Adherence to FAA Regulations) – Training – Intelligent Aircraft.

* * *

RD Group operates small, lightweight rotorcraft (multi-rotor / quad-rotor) sUAS weighing less than 6 Lbs. (gross weight including payload). These intelligent GPS enabled sUAS have the ability to "auto hoover" and "auto return home" in the event of a loss of RF control signal.

sUAS aircraft operated by RD Group are discussed in detail in Section 6 (sUAS Aircraft).

* * *

Flight crew for RD Group sUAS operations will be a Flight Operator (Pilot) and a Visual Observer (VO).

The Flight Operator (Pilot) will possess a current FAA private pilot license and a current FAA Class III medical certificate. The Visual Observer (VO) will have received required RD Group training to qualify for Visual Observer (VO) duties.

RD Group Flight Crew requirements are discussed in detail in Section 7 (sUAS Pilot in Command).

* * *

RD Group flight operations are conducted over private or over controlled access property, below 400 feet AGL and with the permission of the property owner/controller or authorized representative.

During RD Group flight operations the sUAS will always be within visual line of sight (VLOS) of either the Flight Operator (Pilot) or the Visual Observer (VO).

sUAS flight operations will always be operated in areas that are clear of people, except for personal directly involved with sUAS operations.

RD Group flight operations are discussed in detail in Section 8 (sUAS Operating Parameters).

4) Regulations Relief Sought For

Listed below are FAA regulations for which RD Group is seeking relief.

RD Group also request relief from such other FARS as the FAA deems appropriate to enable RD Group's requested operations.

The FAA make any modifications it determines necessary in the granting of this Section 333 Exemption request.

14 CFR § 61.23 (a)(2)

§61.23 Medical certificates: Requirement and duration.

(a) Operations requiring a medical certificate. Except as provided in paragraphs (b) and (c) of this section, a person—

(2) Must hold at least a second class medical certificate when exercising:

(i) Second-in-command privileges of an airline transport pilot certificate in part 121 of this chapter (other than operations specified in paragraph (a)(1)(ii) of this section); or

(ii) Privileges of a commercial pilot certificate; or

(3) Must hold at least a third-class medical certificate—

(i) When exercising the privileges of a private pilot certificate;

Relief from 14 CFR § 61.23 (a)(2) is sought from the requirement to hold a Second Class Medical Certificate for commercial flight operations. For sUAS operations a Third Class Medical Certificate (as required for Private Pilot Privileges) provides an equivalent level of safety as that of a Second Class Medical Certificate given that:

1) No persons (crew/passengers) or cargo are carried onboard the sUAS.
2) The sUAS has the ability to "auto hoover" and "auto return home" at the touch of a button.
3) In the event of incapacitation of the Flight Operator (Pilot) the sUAS will automatically begin a descent and landing when the battery level is reduced to below 15%.

Regulations Relief Sought For

14 CFR § 61.113 (a) and (b)

§61.113 Private pilot privileges and limitations: Pilot in command.

(a) Except as provided in paragraphs (b) through (h) of this section, no person who holds a private pilot certificate may act as pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as pilot in command of an aircraft.

(b) A private pilot may, for compensation or hire, act as pilot in command of an aircraft in connection with any business or employment if:

(1) The flight is only incidental to that business or employment; and

(2) The aircraft does not carry passengers or property for compensation or hire.

Relief from 14 CFR § 61.113 (a) and (b) is sought from the requirement for the sUAS Flight Operator (Pilot) to hold a FAA Commercial Pilot Certificate.

RD Group Flight Operator (Pilot) will hold a FAA Private Pilot Certificate.

A pilot with a FAA Private Pilot Certificate and a pilot with a FAA Commercial Pilot Certificate have both demonstrated a parallel level of required aeronautical knowledge. A FAA Commercial Pilot Certificate requires demonstration of further airmanship skills to safely carry passengers and cargo for hire. RD Group sUAS will not carry onboard any persons (passengers/crew) or cargo for hire.

For sUAS operations a pilot with a FAA Private Pilot Certificate will provide the equivalent and required level of safety to operate the sUAS as would a pilot with a FAA Commercial Pilot Certificate.

These enhanced airmanship skills are not utilized in flight of the sUAS, thus a Flight Operator (Pilot) holding a FAA Private Pilot Certificate with sUAS flight training will provide an equivalent level of safety.

In the granting of exemption #11062 to Astraeus Aerial the FAA determined that a PIC with a FAA Private Pilot Certificate operating the sUAS would not adversely affect operations in the NAS or present a hazard to persons or property on the ground.

In similar fashion to Astraeus Aerial operations, RD Group operations are conducted over private property or over controlled access property and with the permission of the property owner/controller or authorized representative.

The FAA has previously issued an exemption to this rule [14 CFR § 61.113 (a) and (b)] in exemption #11062 to Astraeus Aerial.

Regulations Relief Sought For

14 CFR § 91.7 (a)

§91.7 Civil aircraft airworthiness.

(a) No person may operate a civil aircraft unless it is in an airworthy condition.

Relief from 14 CFR § 91.7 (a) is sought requiring Civil Aircraft Airworthiness because:

1) The sUAS will not receive and Airworthiness Certificate under 14 CFR § 21.
2) Compliance with RD Group Operating Documents will provide a means of insuring an equivalent level of safety.
3) The Flight Operator (Pilot) of the sUAS has final authority to determine whether the sUAS in a safe condition for flight.

In the granting of exemption #11188 to State Farm the FAA determined that even though the sUAS is not required to have an airworthiness certificate per 14 CFR § 21 Subpart H, relief from the requirements of 14 CFR § 91.7 (a) [Civil Aircraft Airworthiness] is required.

The FAA considers compliance with operating documents to be a sufficient means of determining an airworthy condition in accordance with the requirements of this part.

Additionally, in accordance with 14 CFR § 91.7 (b), the PIC is responsible for determining whether the aircraft is in a condition for safe flight. The FAA found in the granting of exemption #11188 to State Farm Mutual Automobile Insurance Company that the PIC can comply with this requirement.

The FAA has previously issued an exemption to this rule [14 CFR § 91.7 (a)] in exemption #11188 to State Farm Mutual Automobile Insurance Company.

14 CFR § 91.119 (c)

§91.119 Minimum safe altitudes: General.

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

(c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

Relief from 14 CFR § 91.119 (c) is sought because:

1) All sUAS flights are conducted below 500 feet AGL.
2) All sUAS flights operate in a tightly controlled area below 400 feet AGL over private or controlled property with permission of the property owner.

In the granting of exemption #11188 to State Farm Mutual Automobile Insurance Company the FAA determined that sUAS operations should remain 500 feet from all persons not directly involved with sUAS operations. The FAA also has determined that operations of closer than 500 feet may be permitted if:

1) All non-participating persons are protected by a suitable shelter.
2) Permission has been granted by the property owner/controller or authorized representative.

The FAA has previously issued an exemption to this rule [14 CFR § 91.119 (c)] in exemption #11188 to State Farm Mutual Automobile Insurance Company.

14 CFR § 91.121

§91.121 Altimeter settings.

(a) Each person operating an aircraft shall maintain the cruising altitude or flight level of that aircraft, as the case may be, by reference to an altimeter that is set, when operating—

(1) Below 18,000 feet MSL, to—

(i) The current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft;

(ii) If there is no station within the area prescribed in paragraph (a)(1)(i) of this section, the current reported altimeter setting of an appropriate available station; or

(iii) In the case of an aircraft not equipped with a radio, the elevation of the departure airport or an appropriate altimeter setting available before departure; or

(2) At or above 18,000 feet MSL, to 29.92″ Hg.

(b) The lowest usable flight level is determined by the atmospheric pressure in the area of operation as shown in the following table:

(c) To convert minimum altitude prescribed under §§91.119 and 91.177 to the minimum flight level, the pilot shall take the flight level equivalent of the minimum altitude in feet and add the appropriate number of feet specified below, according to the current reported altimeter setting:

Relief from 14 CFR § 121 is sought because:

1) The sUAS is not equipped with an altimeter.
2) All sUAS flights operate in a tightly controlled area below 400 feet AGL over private or controlled property and with the permission of the property owner.
3) All sUAS flights are conducted below 400 feet AGL.
   a. GPS altitude information from the sUAS will be via a data down-link and will be displayed to the Flight Operator (Pilot) in real-time..
4) This provides an equivalent level of safety.

In the granting of exemption #11188 to State Farm Mutual Automobile Insurance Company the FAA determined that:

1) All sUAS flights operate in a tightly controlled area below 400 feet AGL over private or controlled property and with the permission of the property owner and within VLOS of the Flight Operator (Pilot) or Visual Observer (VO).
2) The use of onboard GPS altitude information is provided via a data down-link and to the PIC

The FAA has previously issued an exemption to this rule [14 CFR § 91.121] in exemption #11188 to State Farm Mutual Automobile Insurance Company.

Regulations Relief Sought For

14 CFR § 91.151 (a) and (b)

§91.151 Fuel requirements for flight in VFR conditions.

(a) No person may begin 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.

(b) No person may begin a flight in a rotorcraft 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, to fly after that for at least 20 minutes.

Relief from 14 CFR § 91.151 (a) and (b) is sought because:

1) Complying with the 30 minute fuel reserve would unnecessarily limit the length of the sUAS flights. The DJI Phantom 2 Vision+ has a endurance limit of 25 minutes.
2) All sUAS flights operate in a tightly controlled area below 400 feet AGL over private or controlled property and with the permission of the property owner.
3) The DJI Phantom 2 Vision+ sUAS has the enhanced safety feature that it will automatically descend and land when the battery level falls to below 15%. Upon landing the DJI Phantom 2 Vision+ motors will stop.
4) The DJI Phantom 2 Vision+ sUAS provides the Flight Operator (Pilot) real-time display of available remaining battery power for flight.
5) An equivalent level of safety can be achieved by limiting flights to 25% available battery power.
6) The DJI Phantom 2 Vision+ sUAS operated by RD Group is a rotorcraft (multi-rotor / quad-rotor) unmanned aircraft.

The FAA has previously issued an exemption to this rule [14 CFR § 91.151 (a)(1)] in exemption #11188 to State Farm Mutual Automobile Insurance Company.

14 CFR § 91.405 (a)

§91.405 Maintenance required.

Each owner or operator of an aircraft—

(a) 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;

Relief from 14 CFR § 91.405 (a) is sought because:

1) Given that these sections and Part 43 apply to Certificated Aircraft, these sections do not apply to the operation of sUAS.

2) Maintenance and preventative maintenance will be performed in accordance with the sUAS manufacturers (DJI) operation and maintenance instructions.

The FAA has previously issued an exemption to this rule [14 CFR § 91.405 (a)] in exemption #11188 to State Farm Mutual Automobile Insurance Company.

14 CFR § 91.407 (a)(1)

§91.407 Operation after maintenance, preventive maintenance, rebuilding, or alteration.

(a) No person may operate any aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless—

(1) It has been approved for return to service by a person authorized under §43.7 of this chapter; and

Relief from 14 CFR § 91.407 (a)(1) is sought because:

3) Given that these sections and Part 43 apply to Certificated Aircraft, these sections do not apply to the operation of sUAS.

4) Maintenance and preventative maintenance will be performed in accordance with the sUAS manufacturers (DJI) operation and maintenance instructions.

The FAA has previously issued an exemption to this rule [14 CFR § 91.407 (a)(1)] in exemption #11188 to State Farm Mutual Automobile Insurance Company.

Regulations Relief Sought For

14 CFR § 91.409 (a)(1) and (2)

§91.409 Inspections.

(a) Except as provided in paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had—

(1) An annual inspection in accordance with part 43 of this chapter and has been approved for return to service by a person authorized by §43.7 of this chapter; or

(2) An inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

No inspection performed under paragraph (b) of this section may be substituted for any inspection required by this paragraph unless it is performed by a person authorized to perform annual inspections and is entered as an "annual" inspection in the required maintenance records.

Relief from 14 CFR § 91.409 (a)(1) and (2) is sought because:

1) Given that these sections and Part 43 apply to Certificated Aircraft, these sections do not apply to the operation of sUAS.

2) Maintenance and preventative maintenance will be performed in accordance with the sUAS manufacturers (DJI) operation and maintenance instructions.

The FAA has previously issued an exemption to this rule [14 CFR § 91.409 (a)(1) and (2)] in exemption #11188 to State Farm Mutual Automobile Insurance Company.

Regulations Relief Sought For

14 CFR § 91.417 (a) and (b)

§91.417 Maintenance records.

(a) Except for work performed in accordance with §§91.411 and 91.413, each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:

(1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include—

(i) A description (or reference to data acceptable to the Administrator) of the work performed; and

(ii) The date of completion of the work performed; and

(iii) The signature, and certificate number of the person approving the aircraft for return to service.

(2) Records containing the following information:

(i) The total time in service of the airframe, each engine, each propeller, and each rotor.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.

(iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revision date. If the AD or safety directive involves recurring action, the time and date when the next action is required.

(vi) Copies of the forms prescribed by §43.9(d) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

(b) The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator under §43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service.

Relief from 14 CFR § 91.417 (a) and (b) is sought because:

1) Given that these sections and Part 43 apply to Certificated Aircraft, these sections do not apply to the operation of sUAS.

2) RD Group sUAS Maintenance/Corrective Action Documentation procedures are described in detail in section 9 (sUAS Maintenance).

The FAA has previously issued an exemption to this rule [14 CFR § 91.417 (a) and (b)] in exemption #11188 to State Farm Mutual Automobile Insurance Company.

5) RD Group

RD Group is an American owned and operated company that performs commercial aerial video and photography services for real estate and construction, surveying and inspection, marine and wildlife, agriculture and for special events.

In the United States we utilize Certified manned aircraft and Certified manned helicopters with a pilot who holds a FAA Pilot Commercial Certificate.

In numerous International Countries we are permitted by law to utilize small Unmanned Aircraft System (sUAS) to perform these same commercial aerial video and photography services. The use of sUAS provides an increase in operational flexibility and provides higher quality images at a greatly reduced economic cost.

However in the United States (our country of residency and citizenship) we are permitted to fly a sUAS for hobby or recreational purposes only (commercial operation is prohibited)!

Existing FAA Regulations burden RD Group's sUAS operations by preventing RD Group from performing commercial sUAS operations to conduct aerial video and photography services for real estate and construction, surveying and inspection, marine and wildlife, agriculture and for special events

RD Group is owned and operated by Mr. David w Mansen.

With over thirty years' experience in the airspace industry interacting with the FAA as a Pilot, as a FAA Part 145 Maintenance Inspector and as a FAA Part 145 Repair Station "FAA Accountable Manager" Mr. Mansen has demonstrated an exemplary record of safe operation and of adherence to FAA regulations.

Mr. Mansen currently holds a FAA Private Pilot License with ASEL (airplane single engine land) and AMEL (airplane multi engine land) ratings. Since the issuance of this license in the early 1980's, Mr. Mansen has had ZERO FAA safety incidents, ZERO FAA infractions, and ZERO FAA citations – an impeccable and spotless record of adherence to safety and adherence to FAA regulations.

Mr. Mansen founded TexasGYRO (T69R487X), a FAA Part 145 Licensed Aircraft Maintenance facility and through smart business practices, a relentless pursuit of safety and adherence to FAA regulations was able to sell TexasGYRO as a successful business after ten years of operation.

Mr. Mansen served as the FAA Accountable Manager at TexasGYRO for ten years with ZERO FAA safety incidents, ZERO FAA infractions, and ZERO FAA citations. Mr. Mansen has proven that he has the skill, knowledge and experience necessary to install a successful training program and to manage and operate a FAA Certified Aerospace facility.

Mr. Mansen has an impeccable record of safety and adhering to FAA regulations.

6) sUAS Aircraft

Hobbyist and aircraft enthusiast have been safely flying remotely controlled aircraft for decades. In June of 1981 the FAA publish AC 91-57 (Model Aircraft Operating Standards). This set the standard for operation by which we have safely abided by for over thirty years.

Accepted safe practices for hobby and recreation flying of a remotely controlled aircraft are that a vehicle must weigh less than 55 lbs., must be operated within line-of-sight of the operator and must not exceed an operating altitude of 400 feet AGL (above ground level).

Technology advances – Time passes. With today's technology we have the capability to mount a lightweight still or video camera in a remotely controlled aircraft and monitor this video feed in real-time during flight. This ability to capture video and still images is the foundation for commercial sUAS operation today.

* * *

With the technology available today the safety of a sUAS has been increased dramatically. On today's sUAS there is an intelligent Flight Control System coupled with built-in GPS providing accurate GPS position information.

Telemetry provides real-time data to the Flight Operator (Pilot) with altitude (AGL), flight speed and distance from the Flight Operator (Pilot). The Flight Operator (Pilot) is also provided in real-time the available remaining battery power for flight and the number of GPS satellites in view. A "radar style display" provides real-time location and heading relative to the Flight Operator (Pilot).

The Flight Operator (Pilot) is no longer estimating his/her altitude, speed, distance and heading or available flight power. He/she views these critical flight parameters live and in real-time.

The intelligent Flight Control System onboard the sUAS is programmed via software to limit the flight altitude to 400 feet AGL. There will be no inadvertent flight above the restricted operating altitude.

The intelligent Flight Control System onboard the sUAS is programmed via software to prevent motor start within 5 nautical miles of an airport or in restricted or in prohibited airspace. This prevents inadvertent flight within 5 nautical miles of an airport or otherwise restricted airspace.

The intelligent Flight Control System coupled with GPS position information provides the ability for the Flight Operator (Pilot) to permit the sUAS to auto-hoover in position with compensation for wind drift.

The intelligent Flight Control System coupled with GPS position information provides the ability for the Flight Operator (Pilot) to command the sUAS to automatically return to its point of departure.

The sUAS will return to its point of departure automatically in the event of a loss of RF Control from the Flight Operator (Pilot).

* * *

sUAS Operated by RD Group

sUAS operated by RD Group do not carry onboard any persons (crew or passengers). No property belonging to any persons or group other than RD Group is carried onboard RD Group sUAS during RD Group flight operations.

1) sUAS Operated by RD Group are as follows:
   a. DJI Phantom 2 Vision+
   b. None Other

DJI Phantom 2 Vision+

1) The DJI Phantom 2 Vision+ is a small, lightweight multi-rotor battery powered aircraft. It does not carry or contain onboard any flammable fuel, explosives or weapons systems.
2) Make (Manufacturer): DJI
   i. DJI is a world leader in innovation and manufacturing of sUAS. DJI has a well-known commitment for creating safe, easy to operate sUAS.
3) Model: Phantom 2 Vision+
4) Type: Rotorcraft (multi-rotor / quad-rotor)
5) Specifications:
   a. Size: 14 inches (diagonal – motor to motor)
   b. Maximum Weight (gross maximum weight including payload): 2.9 lbs.
   c. Maximum Horizontal Speed 29 Knots: (15 m/s)
   d. Maximum flight time:25 minutes
   e. RF Control range: 2,600 feet
6) Airframe
   a. Quad-Rotor Electric Propulsion System
   b. Safety Rotor Guards
   c. Power Source (Removable/Rechargeable Battery System)
   d. Brilliant Red/Green LED indicators beneath the aircraft:
      i. To differentiate aircraft front/rear
      ii. To alert the operator of loss of GPS signal
7) DJI Naza-M V2 Intelligent Flight Control System
8) GPS
9) Digital Compass
10) 5.8 GHz (flight controller)
11) 2.4 GHz (video and data communication)
12) All RF components are FCC certified.
13) Digital Camera and Camera Gimbal

DJI Phantom 2 Vision+ Safety Features:

1) The DJI Phantom 2 Vision+ is equipped with safety rotor guards to prevent/reduce injury/damage in the event of accidental impact with persons or property.

2) The DJI Phantom 2 Vision+ has an onboard DJI Naza-M V2 Intelligent Flight Control System with built-in GPS providing accurate position information.

3) The DJI Phantom 2 Vision+ provides Flight Telemetry Data in real-time to the Flight Operator (Pilot) with the following information:

   a. Display real-time Altitude (AGL),

   b. Display real-time Flight Speed and Distance from the Flight Operator (Pilot).

   c. Display real -time number of GPS satellites in view

   d. Display real -time available remaining battery power for flight.

      i. Audible and visual alarms alert the operator on the operator display when battery level is reduced to below 28%.

4) When the battery level is reduced to below 15% the DJI Phantom 2 Vision+ will begin an automatic descent and landing. Upon landing the DJI Phantom 2 Vision+ motors will stop. the DJI Phantom 2 Vision+ will not crash upon inadvertent exhaustion of its power source.

5) A “radar style display” provides real-time location and heading relative to the Flight Operator (Pilot).

6) The intelligent Flight Control System coupled with the GPS position information onboard the DJI Phantom 2 Vision+ provides the ability for the Flight Operator (Pilot) to permit the sUAS to auto-hoover in position with compensation for wind and drift.

7) The intelligent Flight Control System coupled with the GPS position information onboard the DJI Phantom 2 Vision+ provides the ability for the Flight Operator (Pilot) to command the sUAS to automatically return to its point of departure.

8) The DJI Phantom 2 Vision+ will return to its point of departure, land and shut down the motors automatically in the event of a loss of RF Control from the Flight Operator (Pilot). Loss of signal will be displayed on the Flight Operators (Pilot) display.

9) The DJI Phantom 2 Vision+ is programmed via software to not permit operation above 400 feet AGL. This prevents inadvertent flight above the 400 feet AGL ceiling mandated by the FAA.

10) The DJI Phantom 2 Vision+ is programmed via software to prevent motor start within 5 nautical miles of an airport or in restricted or in prohibited airspace. This prevents inadvertent flight within 5 nautical miles of an airport or otherwise restricted airspace.

11) These highly advanced capabilities insure that the DJI Phantom 2 Vision+ will not create a hazard to the public and can be safely operated in the National Airspace System (NAS) with an equivalent level of safety as a certified manned aircraft.

7) sUAS Flight Crew

Private Pilot Certificate

A pilot with a FAA Private Pilot Certificate and a pilot with a FAA Commercial Pilot Certificate have both demonstrated a parallel level of knowledge in required aeronautical knowledge. A FAA Commercial Pilot Certificate will demonstrate further airmanship skills to safely carry passengers and cargo for hire. A sUAS will not carry passengers or cargo for hire. Thus a Flight Operator (Pilot) with a FAA Private Pilot Certificate will provide the equivalent and required level of safety to operate a sUAS as a Flight Operator (Pilot) with a FAA Commercial Pilot Certificate.

These enhanced airmanship skills are not utilized in the flight of the sUAS thus a FAA Certificated Private Pilot with sUAS flight training will provide an equivalent level of safety.

In the granting of exemption #11062 to Astraeus Aerial the FAA determined that a PIC with a FAA Private Pilot Certificate operating the sUAS would not adversely affect operations in the NAS or present a hazard to persons or property on the ground.

In similar fashion to Astraeus Aerial operations, RD Group operations are conducted over private property or over controlled access property and with the permission of the property owner/controller or authorized representative.

RD Group sUAS Flight Operator (Pilot) holds a current FAA Private Pilot Certificate.

Third Class Medical Certificate

A Third Class Medical Certificate provides an equivalent level of safety as a FAA Second Class Medical Certificate given the level of safety required for sUAS flight operations.

A Third Class Medical Certificate provides an equivalent level of safety as does a FAA Second Class Medical Certificate given:

1) There are no persons (crew or passengers) or cargo onboard the sUAS.
2) The sUAS ability to “auto hoover” and “auto return home” at the touch of a button.
3) In event of incapacitation of the Flight Operator (Pilot) the sUAS will automatically begin a descent and landing when the battery level is reduced to below 15%.

RD Group sUAS Flight Operator (Pilot) holds a current Third Class Medical Certificate.

Flight Operator (Pilot) Requirements:

1) Flight Operator (Pilot) must possess at a minimum:
   a) FAA issued Private Pilot Certificate.
   b) Must meet FAA flight currency requirements for FAA pilot license held.
   c) Current FAA Third Class Medical Certificate.
   d) Flight Operator (Pilot) must have received and documented all required initial and recurrent training.
2) Flight Operators (Pilot) Flight Experience
   a) Flight Operators (Pilot) must have accumulated and logged a minimum of 20 flight cycles and 20 flight hours as sUAS pilot.
      i) At least 10 hours of this time must be in a similar type of sUAS.

Visual Observer (VO) Requirements:

1) Visual Observer (VO) must have received and documented all required initial and recurrent training.
2) The Visual Observer (VO) is NOT required to possess a FAA Pilot License or a FAA Medical Certificate.

8) sUAS Operating Parameters

sUAS Requirements for Flight:

3) sUAS operator must have continuously available telemetry from the sUAS including:
   a) Display of sUAS distance from the operator.
   b) Display of sUAS altitude from the operator.
   c) Display of sUAS remaining battery life.
4) sUAS may not be operated with less than 25% useful battery life.
5) sUAS may not carry any flammable fuel, pyrotechnic devices or weapon systems onboard.
6) sUAS may not carry any device which propels a projectile or drops any object that creates a hazard to persons or property.

sUAS Documentation Requirements

Due to the sUAS size and weight limitations and the fact that the sUAS does not contain an operator, these documents will be with the Flight Operator (Pilot) during all flight operations.

1) Flight Operators (Pilot) must have the following manuals and documents for flight.
   a) FAA Exemption
   b) DJI Phantom User's Manual
   c) DJI Phantom Pilot Training Guide

sUAS Pre-Flight Requirements

A pre-flight operations are critical to safe flight. The Flight Operator (Pilot) is responsible for completion of all pre-flight inspections and operations.

1) Pre-Flight Inspection
   a) Batteries used on flight.
      i) These batteries include, but are not limited to the sUAS primary flight battery, sUAS remote control battery, First Person View (FPV) range extender and Flight Operator (Pilot) FPV display/control device.
      ii) Verify sufficient charge for the flight to be flown
      iii) Visual inspection to insure that the batteries are not damage, swollen or corroded
   b) sUAS Propellers
      i) Verify smooth mechanical rotation
      ii) Visual inspection of all propellers for mechanical defects

c) sUAS Mechanical Visual inspection of sUAS for defects that would affect the safe operation of flight.
   i) Rotor guards
   ii) Landing gear

d) Camera
   i) Remove lens cap
   ii) Inspect for smooth motion in all axis
   iii) Inspect for mechanical defects that would affect the safe operation of flight
   iv) Insure installation of Micro-SD card

2) Power Up
   a) Verify that S1 and S2 on the remote control are in the "UP" position.
   b) Power on the equipment:
      i) Flight Operator (Pilot) FPV display/control
      ii) Range Extender
      iii) Remote Control
      iv) Phantom
   c) Calibrate the Phantom compass in accordance with DJI Phantom Operational Manual
   d) Verify acquisition of GPS signal lock
   e) Observe all devices for abnormal behavior
3) DJI Vision Application
   a) Verify FPV display/control in connected to the Phantom
   b) Verify Wi-Fi signal strength
   c) Initiate the DJI Vision application on the FPV display/control
   d) Verify FPV camera is operational

Pre-Flight Operations Complete – Phantom is ready for flight

sUAS Flight Requirements

All RD Group sUAS flights are performed within a small geographical area defined by line-of-sight of the Flight Operator (Pilot) or Visual Observer (VO) and with a maximum flight altitude of 400 feet Above Ground Level (AGL).

All RD Group sUAS flights operate over private or controlled property and with the permission of the property owner.

1) The Flight Operator (Pilot) is has final authority for safety of flight.
2) A pre-flight briefing will be performed before every flight by the Flight Operator (Pilot) with all personal involved in planned sUAS flight operations. This briefing will include at a minimum:
   a) Safety
   b) Emergency Procedures
   c) Planned Operations.

3) A pre-flight safety inspection will be performed before every flight segment.
4) sUAS operations will always utilize a Visual Observer (VO)
5) The Flight Operator (Pilot) and Visual Observer (VO) must maintain verbal communications at all times.
6) sUAS Flight Operator (Pilot) or Visual Observer (VO) must maintain visual line of sight and visual contact with the sUAS at all times.
    a) Visual line of sight requires the unaided (corrective lenses and /or sunglasses excepted) contact between a pilot in command and an unmanned aircraft sufficient to maintain safe operational control of the aircraft, know its location, and be able to scan the airspace in which it is operating to see and avoid other air traffic or objects aloft or on the ground.
7) No member of the Flight Crew may participate in sUAS flight while under the influence of alcohol or any drug that would adversely affect the ability to safely participate in the flight of the sUAS.
8) sUAS may not carry any flammable fuel, pyrotechnic devices or weapon systems onboard.
9) sUAS may not carry any device which propels a projectile or drops any object that creates a hazard to persons or property.
10) sUAS Flight
    a) sUAS may not be flown in a careless or reckless manner.
    b) sUAS may not be flown in areas where flight of sUAS is prohibited.
    c) sUAS will yield the right-of-way to all manned aircraft.
11) Flight Restrictions
    a) All RD Group sUAS flights will operate in a tightly controlled area over private or controlled property with permission of the property owner.
    b) sUAS may not operate in Class A airspace.
    c) Maximum sUAS operating altitude of 400 feet above ground level.
    d) sUAS may not be flown at an airspeed exceeding 29 Knots (15 m/s).
    e) Maximum sUAS flight distance of 2,600 feet from the sUAS operator.
    f) sUAS operations require a minimum visibility of 3 statute miles.
    g) sUAS must operate no closer than 500 feet below or 2,000 feet horizontally from any clouds.
    h) sUAS may NOT be flown at night.
    i) sUAS Flight Operator (Pilot) may not operate the sUAS from any moving vehicle.
        i) Exception: sUAS operation from a boat that is located at least of ½ mile from shore is permitted.
    j) sUAS flight will be terminated when remaining battery falls to 25% capacity.

12) Operation in the Vicinity of Airports
    a) An airport as is designated on current FAA Aeronautical Chart.
    b) sUAS operation within 5 nautical miles of an airport WITH an operating Air Traffic Control Tower is permitted provided:
        i) The sUAS Flight crew must be in continuous communication with and receive clearance from the active Air Traffic Control Tower.
    c) sUAS operation within 5 nautical miles of an airport WITHOUT an operating control tower is permitted provided:
        i) The Flight crew must monitor and transmit position/intention reports on the local Unicom frequency when operating within this area.
13) Flight Restrictions/Clearance from Non-Participating Persons
    a) Flight Operations must be conducted at least 500 feet from any and all non-participating persons.
        i) Flight operations with clearance of less than 500 feet are permitted if barriers or structures are present that sufficiently protect non-participating persons from debris in the event of an accident.
        ii) If during flight a situation arises where non-participating persons leave such protection the sUAS flight must be terminated immediately.
    b) Due to their small size, light weight (less than 6 lbs.), the fact that they contain rotor guards to protect objects in the event of impact, the fact that no flammable fuels or pyrotechnics are onboard:
        i) sUAS operation of a micro-light (sUAS weighing less than 6 lbs.) IS permitted with less than 500 feet clearance of objects, structures or vehicles.
        ii) Operation within 500 feet of non-participating persons NOT protected by shelter is never permitted.

Accident/Incident Reporting

Any incident or accident that inflicts serious injury or death up a person or causes property damage in excess of $25,000 must be reported to the local FAA Flight Safety District Office (FSDO) within 72 hours of the occurrence.

9) sUAS Maintenance

Proper inspection and maintenance is critical to safe sUAS operation.

Preventative Maintenance

Maintenance, Preventative Maintenance and Inspections will be performed in accordance with DJI maintenance and inspection recommendations contained in the latest DJI Manual.

Maintenance/Corrective Action Documentation

Each sUAS will have an Aircraft Maintenance Record. Entered into this Aircraft Maintenance Record will be:

1) sUAS Discrepancies
2) Action taken to correct these discrepancies.
3) sUAS Inspections Performed
4) sUAS Maintenance Performed

Corrective actions and inspections documented in the Aircraft Maintenance Record will include at a minimum the following information:

1) Date
2) Discrepancy or corrective action taken
3) Part(s) replaced
4) Person performing the work
    a) Person performing the work must have documented completion of RD Group required training.

Actions and Records entered into the sUAS Aircraft Maintenance Record will be maintained for two years.

10) sUAS Training

Safety is achieved through the relentless pursuit of quality training and adherence to FAA Approved Operating Procedures and FAA Regulations.

This section describes the policies and procedures for training performed by RD Group.

RD Group will use all training sources and methods available to provide employees with the information necessary for them to perform their assigned duties and tasks correctly and safely.

The majority of the training provided by this organization will use on-the-job (OJT) methodology.

Flight Operator (Pilot) Training

Flight Operator (Pilot) will receive and document training type and training hours as required per Training Table Requirements.

1) Flight Operators (Pilot) Flight Experience
   a) Flight Operators (Pilot) must have accumulated and logged a minimum of 20 flight cycles and 20 flight hours as sUAS pilot.
      i) At least 10 hours of this time must be in a similar type of sUAS.

Visual Observer (VO) Training

Visual Observer (VO) will receive and document training type and training hours as required per Training Table Requirements.

Maintenance Training

Maintenance Personnel will receive and document training type and training hours as required per Training Table Requirements.

Training Sources

RD Group will use any and all training materials deemed necessary by RD Group and/or the FAA to provide training to RD Group Flight Crew members. The following is a list of materials that will be used to provide training:

1) FAA Far-AIM
2) VFR Sectional Chart
3) RD Group Section 333 Exemption
4) Academy of Model Aeronautics (AMA) Safety Code
5) DJI Phantom Pilot Training Guide
6) DJI Phantom User's Manual
7) DJI Phantom Guide

Training Requirements Table

	Flight Operator (Pilot)	Visual Observer (VO)
Training Type	Number of Hours training required This is total hours of training required	
Initial Ground	10	5
Initial Flight	5	N/A
Flight Operator (Pilot) must meet flight experience qualifications. These are different from the initial Flight Training requirements.		
Annual Recurrent Ground	5	2
Annual Recurrent Flight	5	N/A
Initial Maintenance	2	2
Annual Recurrent Maintenance	1	1
Training Requirements	(Yes/No)	
sUAS Technology	Yes	Yes
Maintenance	Yes	Yes
Safety	Yes	Yes
FAA Regulations	Yes	Yes
National Airspace Regulations & Utilization	Yes	Yes
Documentation Requirements for Flight	Yes	Yes
Flight Crew Requirements for Flight	Yes	Yes
Weather Requirements for Flight	Yes	Yes
Crew Duties and Responsibilities	Yes	Yes
Flight Restrictions	Yes	Yes
Flight Training	Yes	No
Accident/Incident Reporting	Yes	No

Training Guide

This detailed training guide covers topics, information and comments about each subject that will be taught. This is not all inclusive, any/all subjects deemed necessary by RD Group and/or the FAA will be taught.

1) sUAS technology
   a) sUAS operator control
   b) sUAS intelligent flight controller
   c) GPS
   d) LiPo Batteries
   e) FPV Technology
   f) Camera/Gimbal
   g) FPV Control-Display
2) Maintenance
   a) Safety
   b) Reference Material for Maintenance
   c) Documentation of Maintenance Actions
3) Safety
   a) How not to operation in a careless or reckless manner.
   b) Clearance from personal not directly involved with the flight of the sUAS.
   c) Model Aeronautics National Model Aircraft Safety Code
4) FAA Regulations
   a) Section 333 Exemption – Limitations and Requirements.
   b) AIM – FAR
   c) sUAS Regulations
   d) Hobby & Recreation
   e) Commercial Operations
5) National Airspace Regulations & Utilization
   a) Detailed examination of the United States National AirSpace system
   b) VFR Sectional Chart
6) Documentation Requirements for Flight
7) Flight Crew Requirements for Flight
   a) Flight Operator (Pilot)
   b) Visual Operator (VO)
   c) Flight Dispatcher
   d) sUAS Requirements for Flight
8) Weather Requirements for Flight

9) Crew Duties and Responsibilities
   a) Flight Operator (Pilot)
   b) Visual Observer (VO)
10) Flight Restrictions
   a) Flight restrictions/requirements imposed by Section 333 Exemption
   a) National AirSpace limitations for the use of sUAS.
   b) Operation in the vicinity of airports
   c) Line-of-Sight
      i) What does line-of-sight mean
      ii) Visual line of sight requires the unaided (corrective lenses and /or sunglasses excepted) contact between a pilot in command and an unmanned aircraft sufficient to maintain safe operational control of the aircraft, know its location, and be able to scan the airspace in which it is operating to see and avoid other air traffic or objects aloft or on the ground.
11) Flight Training
   a) Preflight briefing
   b) Safety Pre-Flight
   c) Compass Calibration and GPS acquisition
   d) Take-off and landing
   e) Use of FPV and flight mission equipment
   f) Emergency Procedures
   g) Successful demonstration of all flight maneuvers in the DJI Phantom Pilot Training Guide.
12) Accident/Incident Reporting

11) For the Good of the Public

Equivalent Level of Safety

small Unmanned Aircraft System (sUAS) operated by RD Group provide an increased level of safety vs. certified manned aircraft because of their small size, slow airspeed, light weight, operator license requirements, intelligent sUAS systems and operational parameters required.

A low flying aircraft or a low altitude helicopter (operating in strict compliance with existing FAA regulations) hovering and circling over a small confined area creates an inherent safety risk. This risk can be minimized, but cannot be eliminated. Manned flight involves hazards to life and property.

In the event of an accident or incident the damage caused by a small lightweight sUAS is considerably less than the damage caused by much larger and heavier manned aircraft. The risk of injury or death to people or persons is significantly lower with the use of a sUAS because of the small size, lightweight and slow airspeed of the sUAS.

Certified and manned aircraft are significantly larger and more complex than simple, small Unmanned Aircraft System (sUAS). This simplicity leads to a reduced risk of mechanical failure.

sUAS operated by RD Group carry no flammable fuel, no weapons systems or combustible materials onboard. The risk of fire is virtually eliminated. Manned aircraft are at a constant risk of in-flight fire or fire in the event of an incident or accident.

When operated by a properly trained and qualified flight crew [Flight Operator (pilot) and Visual Observer (VO)], within approved operating parameters and an intelligent flight control system the sUAS is safer than a certified aircraft (for the type of operations RD Group is requesting this exemption for) due to its small size, lightweight and slow flight speed.

sUAS operated by RD Group within the operating parameters outlined herein provide an equivalent level of safety as a certified manned aircraft.

Public Interest

Today's current methods of commercial aerial photography and commercial aerial inspection require the use of a certified manned aircraft or a certified manned helicopter and a pilot with a FAA Commercial Pilot License. A low flying aircraft or a low altitude helicopter (operating in strict compliance with existing FAA regulations) hovering and circling over a small confined area creates an inherent safety risk. It can often create a nuisance of noise pollution in the affected area as well.

RD Group is permitted by law to utilize (sUAS) in many international countries for commercial operations. However in the United States (our country of residency and citizenship) we are only permitted to fly a sUAS for hobby or for recreational purposes only.

These regulatory restrictions create an economic hardship for RD Group.

Granting this requested exemption will be in the public interest because of:

1) The increased level of safety that is afforded by the use of RD Group sUAS vs. the use of a certified manned aircraft or a certified manned helicopter:
2) Because of the economic relief that it will provide to RD Group and its employees.
3) Because of the positive economic impact it will provide to the community.
4) Will provide an economic benefit to American Citizens.
5) Because of the reduction in the number of aircraft in the NAS.
6) Because of the reduction in the level of aircraft noise for persons on the ground.

Granting this Section 333 exemption request for RD Group for commercial operation of sUAS within the operating parameters outlined herein is in the public interest.

Privacy

All sUAS flights operate in a tightly controlled area, at altitude of less than 400 feet AGL and over private or controlled property with permission of the property owner.

sUAS operated by RD Group within the operating parameters outlined herein present no risk to the privacy of the public.

National Security

sUAS do not pose a risk to national security because of:

1) Requirement for the FAA for the sUAS Flight Operator (Pilot) to hold a FAA Private Pilot Certificate
   a) Pilots Certificated by the FAA are subject to security screening by the Department of Homeland Security.
2) Due to their small size (less than 6 Lbs.)
3) Due the tightly controlled area of sUAS operation.
   a) All sUAS flights operate in a tightly controlled area over private or controlled property with permission of the property owner.
4) sUAS carry no flammable fuel onboard.
5) sUAS carry no weapon systems onboard.
6) sUAS carry no combustible materials onboard.

sUAS operated by RD Group within the operating parameters outlined herein present no risk to national security.

Conclusion

Existing FAA Regulations burden RD Group's sUAS operations by preventing RD Group from performing commercial sUAS operations to conduct aerial video and photography services for real estate and construction, surveying and inspection, marine and wildlife, agriculture and for special events

As we have clearly shown, commercial operation of small Unmanned Aircraft Systems (sUAS) by RD Group with the sUAS Aircraft, sUAS Flight Crew, sUAS Operating Parameters, sUAS Maintenance and sUAS training requirements as outlined in this request for relief:

1) Will provide an equivalent level of safety as certified manned aircraft.
2) Will not adversely affect safety in the National Airspace System
3) Will reduce airspace congestion.
4) Will reduce airborne noise.
5) Will not pose a hazard the public
6) Will present no risk to the privacy of the public
7) Will present no risk to national security.
8) Will provide an economic benefit to American Citizens.
9) Is in the interest of the public.

The FAA's authority to issue exemptions from current operating rules and regulations, and the Secretary's authority granted by section 333 of P.L. 112-95 (Special Rules for Certain Unmanned Aircraft Systems) provides an opportunity to authorize certain sUAS operations into the National Airspace System (NAS) prior to implementation of the final sUAS rule.

Granting this Section 333 exemption request for RD Group for commercial operation of sUAS within the operating parameters outlined herein IS in the public interest.

RD Group has shown just cause exist for the FAA to grant relief from these Federal Aviation Regulations.

Thank you,

David w Mansen