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

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

August 10, 2015

Exemption No. 12395
Regulatory Docket No. FAA–2015–1989

Mr. Elliot Sloan
Co-Founder
Macallan and Associates LLC
720 Monroe Street, C210
Hoboken, NJ 07030

Dear Mr. Sloan:

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

By letter dated May 14, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Macallan and Associates LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial photography and videography.

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

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

Airworthiness Certification

The UAS proposed by the petitioner is a DJI Phantom 2.

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, Macallan and Associates 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, Macallan and Associates LLC is hereafter referred to as the operator.

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

1. Operations authorized by this grant of exemption are limited to the DJI Phantom 2 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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May 14, 2015

United States Department of Transportation
Docket Management System
1200 New Jersey Ave., SE
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Macallan & Associates LLC Petition for Exemption to Operate Unmanned Aircraft Systems

Re: Exemption Request Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations from: 14 CFR Part 21, Subpart H; 14 C.F.R. 45.23(b); 14 CFR 61.113(a)&(b); 14 C.F.R. 91.7(a); 14 CFR 91.9(b)(2); 14 C.F.R. 91.103(b); 14 C.F.R. 91.109; 14 C.F. R. 91.119; 14 C.F.R. 91.121; 14 CFR 91.151(a); 14 CFR 91.203(a)&(b); 14 CFR 91.405(a); 14 CFR 407(a)(1); 14 CFR 409(a)(2); 14 CFR 417(a)&(b)

NAME AND ADDRESS OF PETITIONER

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Petition Summary

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95 (2012), 126 Stat. 11 ("Section 333") and the Federal Aviation Administration's ("FAA") general exemption authority under 49 U.S.C. section 44701(f), Macallan & Associates LLC ("Petitioner") hereby petitions for exemptions from Section of 14 CFR Part 21, Subpart H; 14 C.F.R. 45.23(b); 14 CFR 61.113(a)&(b); 14 C.F.R. 91.7(a); 14 CFR 91.9(b)(2); 14 C.F.R. 91.103(b); 14 C.F.R. 91.109; 14 C.F. R. 91.119; 14 C.F.R. 91.121; 14 CFR 91.151(a); 14 CFR 91.203(a)&(b); 14 CFR 91.405(a); 14 CFR 407(a)(1); 14 CFR 409(a)(2); 14 CFR 417(a)&(b)

The proposed exemption, if granted, would allow Petitioner to conduct commercial operations of small camera-mounted unmanned aircraft systems ("UAS") meeting or exceeding all of the operational and safety requirements Congress has set forth in Section 333. All UAS operations will be in accordance with Macallan & Associates LLC's Standard Operating Procedures (SOPs) or as established by the FAA.

Macallan & Associates LLC is a digital media company requesting to be exempt from Federal Aviation Regulations (FARs), in an effort to operate UAS with a maximum weight less than three pounds, in use of commercial applications for photography & videography. This request specifically serves the public interests to help advance and innovate aerial capabilities for photography & videography production, and professional marketing services. The granting of this exemption should reflect Petitioner's experienced pilots, professional approach to UAS operations, awareness of restricted & operational airspace, commitment to FAA educational opportunities and thorough understanding of FAA rules and regulations. The approval of the exemptions outlined below will greatly enhance safety by reducing the overall risk associated with traditional aerial photography and videography services. The Petitioner spares no safety measure to ensure compliant and controlled operations.

Statutory Authority

Section 333, titled "Special Rules for Certain Unmanned Aircraft Systems", provides a mechanism for seeking expedited FAA authorization of safe civil UAS operations in the NAS. Section 333(a) states that the FAA "shall determine if certain unmanned aircraft systems may operate safely in the national airspace system before completion of the (comprehensive) plan and rule making required by section 332(b)(1) of this Act or the guidance required by section 334 of this Act." In Section 332(b)(1), Congress made it clear that Section 333 provides a mechanism for "expedited operation authorization" if several factors are met. Petitioner meets all requirements to permit FAA approval of commercial UAS operations.

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

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

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

Given the small size of the UAS utilized by Petitioner, in conjunction with the safety protocols outlined below will allow for a greater than equivalent level of safety in which Congress envisioned that the FAA must, by exemption allow commercial operations of UAS to commence immediately. Considering the size of the UAS utilized by Petitioner weighing under 3 pounds, and the controlled areas and altitudes in which they operate, approval of the exemption presents no national security issues. Macallan & Associates LLC has established an extensive risk management process for all operations to ensure absolute minimal safety concerns. Provided the clear direction in Section 333 of the Reform Act, the authority contained in the Federal Aviation Act, as amended; the strong equivalent level of safety surrounding the proposed operations, the significant public benefit including enhanced safety, reduction of environmental impacts, and reductions of costs associated with UAS's versus traditional aircraft for aerial photography & photography services thereby benefiting the greater public's interest. Accordingly, the applicant requests that the FAA grant the requested exemption without delay.

UAS Standard Operating Parameters

The limitations and conditions listed below are binding for the operation of UAS for commercial purposes by Macallan & Associates LLC:

1. The UAS will weigh less than 3 pounds at take off and during flight.
2. All flights will take place during the daytime and clear of clouds.
3. All flights will be operated within visual line of sight (VLOS) of the pilot and observer.
4. All flights will be terminated within 25% of battery life remaining.
5. All flights will not exceed the max operational flight time of 15 minutes.
6. The UAS pilot will be Pilot in Command (PIC).
7. Minimum crew for each operation will consist of one certified commercial pilot with a current FAA medical and the visual observer.
8. All flight require real time communication capability between pilot and observer(s)
9. All flights will be operated at an altitude no more than 400 feet AGL.
10. Prior to all flights, the Pilot in Command (PIC) will conduct a full site survey to determine the Area of Responsibility (AOR). Each survey will include the assessment of potential hazards to include but not limited to airspace classification, temporary flight restrictions, NOTAMS, closest airport proximity, and all natural and manmade obstacles. If deemed necessary, Petitioner will employ additional safety observers and safety measures.
11. UAS will not operate within 5 miles of any airport(s).
12. All flights will require written and/or verbal permission from relevant property owners associated with the flight operation and Petitioner will obtain consent for any persons who need to be within 100 feet of the flight operation.

13. All flights will be operated at a lateral distance of at least 50 feet from any inhabited structures, buildings, vehicles, vessels, or individuals not associated with the operation or those that have not signed a waiver in advance of the operation.
14. All required permissions and permits will be obtained from the state, county, or city jurisdictions, including law enforcement and any other appropriate governmental agencies.
15. All flights require a briefing in regard to the UAS operation prior to each day's production activities. All personnel involved with the operational duties of the flight to be present for this briefing.
16. Petitioner will employ sign notifications for all operations in areas close to public activity.
17. If the UAS loses communication of loses GPS signal, the UAS will have the capability to return to a pre-determined location (home function) within the Area of Responsibility (AOR) and land autonomously.
18. The UAS will have the capability to abort a flight in case of unpredicted obstacles, weather, or emergencies.

Requested Exemptions

14 C.F.R Part 21 Subpart H: Airworthiness Certificates 14 C.F.R. 91.7(a), 91.203(a)(1)
Subpart H, entitled Airworthiness Certificates, identifies requirements for processing necessary airworthiness certificates in relation to 91.203(a)(1). The size, weight, speed and controlled area of operations for Petitioner's UAS flights permits exemption from Part 21 because Petitioner meets necessary level of safety pursuant to Section 333 of the Reform Act. The FAA is authorized to exempt aircraft from the airworthiness certificate in consideration of weight, size, speed, maneuverability and proximity to areas such as airports and dense populations. Petitioner meets or exceeds this criteria.

14 C.F.R. 91.203 (a&b) addresses carrying of civil aircraft certifications and registrations. The certification and registration requirements are inapplicable. The necessary level of safety will be achieved by keeping certifications and registrations at Petitioner's operations center.

14 C.F.R. 91.7(a) prohibits the operation of an aircraft without an airworthiness certificate. Airworthiness certificate will not be necessary due to reasons listed above, this regulation is inapplicable.

143 C.F.R 61.113(a)(b) Private Pilots Privileges and Limitations: Pilot in Command
143 C.F.R 61.113(a)(b) limits private pilots to non-commercial operations. Considering the UAS does not carry a pilot or passengers unlike a conventional aircraft and the PIC has over 100 hours of UAS flight time, the necessary level of safety will be accomplished. The area of operation is a controlled setting, and all flights are thoroughly planned and coordinated in advance.

14 C.F.R. 91.9(b)(2) Civil Aircraft Flight Manual in the Aircraft
14 C.F.R. 91.9(b)(2) requires an aircraft flight manual in the aircraft. Considering this is an unmanned aircraft, and given the size of the UAS, this regulation is inapplicable. The necessary level of safety will be accomplished by keeping an operators manual at Petitioner's operations center. The FAA has previously issued exemptions to this regulation in Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167, 10167A, 10602, 10700 and 32827.

14 C.F.R. 91.103(b) Preflight action
14 C.F.R. 91.103(b) States before beginning a flight the PIC must become familiar with all available information concerning the flight. This information must include: (b) For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information. This is not applicable due to Petitioner's off airfield operations.

14 C.F.R. 91.109 Flight instruction; Simulated instrument flight and certain flight tests.
14 C.F.R. 91.109 addresses the operation of a civil manned aircraft aligned with training and flight tests. This is not applicable to the UAS utilized in Petitioner's operations.

14 C.F.R. 91.121 Altimeter Settings
14 C.F.R. 91.121 addresses altimeter settings which is inapplicable because Petitioner's UAS utilizes GPS systems and internal gyroscopes.

14 C.F.R. 91.151 Fuel Requirements for Flight in VFR Conditions
14 C.F.R. 91.151 prohibits 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 the UAS utilized by Petitioner provides approximately 15 minutes of powered flight which is less than the reserve requirement listed in 14 C.F.R. 91.151. In consideration of the limitations of the UAS, its ability to land immediately, and Petitioner's strict policy of limiting all flights to 25% of battery power, this regulation is inapplicable. This policy ensures the UAS will return to its planned landing zone in all operations. FAA exemptions have been granted to other operations, including Exemptions 2689F, 5745, 10673 and 10808.

14 C.F.R. 45.23 Marking of the Aircraft
14 C.F.R. 45.23 addresses requirements of an aircraft to be marked according to certain specifications. Considering the aircraft utilized by Petitioner is unmanned and due to the absence of a cabin or cockpit to mark certain words or phrases, this regulation is inapplicable. Two-inch lettering is unachievable because of the size of the UAS, however Petitioner will mark the aircraft "EXPERIMENTAL" on its fuselage as required by 14 C.F.R. 45.29 (f). The FAA has previously issued exemptions to this regulation including Exemptions Nos. 8738, 10167,10167 A, and 10700.

14 C.F.R. 91.119 Minimum Safe Altitudes
14 C.F.R. 91.119 addresses safe altitudes for the operation of civil aircraft. Petitioner will only operate UAS below 400 AGL. Additionally, Petitioner will operate UAS in a defined and controlled AOR that has been carefully inspected for hazards and flights will only be conducted over private property with consent of the property owner. The necessary level of safety will be achieved considering the size, weight and speed of the UAS along with the controlled location where it is operated.

14 C.F.R. 91.405(a), 407(a)(1), 409(a)(2), 417(a&b) Maintenance Inspections
These regulations require that an aircraft operator or owner "shall have the aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as

prescribed in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter. .. " and others shall inspect or maintain the aircraft in compliance with Part 43.

Given these sections and Part 43 only apply to aircraft with an airworthiness certificate; it is not applicable to Petitioner. The necessary level of safety will be achieved through Petitioner's strict requirement of pilot in command (PIC) conducting preflight protocols, through-flight and post flight inspections of the UAS to ensure it's flight worthiness prior to launch and during flight. Petitioner's UAS will always be flown in compliance with the UAS manufactures manual including firmware updates as well as flight checklist. The Petitioner will maintain performing required maintenance of UAS and will keep a log of any maintenance performed.

Pilot in Command (PIC)

The Pilot in Command (PIC), William Chatham is a managing partner at Macallan & Associates LLC. William has held a current FAA pilots license for over 10 years with instrument multiengine and glider ratings. William has logged over 1000 hours in various types of aircraft in the past 10 years. He is a current member of the US Air Force Auxiliary and is a former mission pilot for the US Air Force. In addition, he has longed had huge interests in UAS operations and capabilities. He has planned, built, and flown hundreds of model airplanes, helicopters, multicopters, and rockets. This foundation in UAS relevant practices and technologies has allowed William to successfully work as a professional UAS operator, cinematographer, and UAS consultant over the past years. He is also a DJI certified technician with over 500 hours of multicopter flight time.

Unmanned Aircraft System (UAS)

The UAS to be operated under this request is the DJI Phantom 2 Quadcopter. Dimensions for this UAS are 11.25 in. rotor to rotor - 15.25 in. diagonal rotor to rotor with a total fully loaded weight less than 3 pounds. This craft operates electrically, carries no explosive material or flammable liquid fuels, operates exclusively within secured areas, with an integrated GPS pilot system with programmed no fly zones for controlled airports to ensure safety of persons and property within and surrounding the limited operating area. The current firmware will not allow UAS to fly or operate within 2 miles of any registered airport. The DJI Phantom 2 Quadcopter has flight speeds of 10m/s and a max ascent / descent speed of 6m/s with a max operational flight time expiring at 15 minutes.

Radio Frequencies

Operational frequency is 2.4GHz ISM (flight control only)
Communication distance is 1000m
Receiver sensitivity is (1%PER) : -97dBm

Pre Flight UAV Inspection

1. Check firmware on UAS and install latest firmware versions when available.
2. Review weather conditions and operation flight plan.
3. Thorough inspection of all operation surroundings for public safety, flight obstructions, and any other flight hazards.
4. Check batteries for full charge.

5. Inspect all propellers for any cracks and tightness.
6. Turn on RC transmitter, set mode channels to GPS, and set throttle position to idle.
7. Turn on UAS and while motionless allow systems self-check.
8. Re-calibrate magnetic compass.
9. Check for GPS through On Screen Display (OSD) - no less than 7 satellite connections.
10. Ascent UAS in GPS mode to height of 10m to check for stable hover and locked position for 45 seconds.

UAV Manufacturer Maintenance Process

1. Visually inspect quadcopter for cracks.
2. Visually inspect quadcopter for missing screws and replace if needed.
3. Check propellers for undo ware damage and replace is needed.
4. Check motors for smooth rotation without attached propeller.
5. Check firmware is up to date.

Additional UAV Inspection

After each 60 minutes of flight time, the UAS will undergo thorough inspection of all aircraft components, including but not limited to actuators / servos, motors, propellers, batteries, remote command and control.

*DJI Phantom 2 Aircraft flight manual supplied

Compliance, Safety, and Public Interests

Based on the size of the craft, experience of Pilot in Command (PIC), and bound operational commitments the petitioner's request is well suited for approval in accordance with Section 333 of the FAA Modernization and Reform Act of 2012. The UAS will be utilized in a variety of applications that traditionally may require much larger manned aircraft carrying crew and flammable fuel to provide services such as photography and videography. The apparent safety and cost benefits achieved by replacing larger manned aircraft to provide such services proposed by the Petitioner gives the FAA good cause to find that the UAS operations enabled by the petition are in the public interest. By granting the requested exemptions, the FAA will help advance the development of safe and successful commercial UAS operations.

Privacy
All UAS operations will be flown over private or controlled access property with property owners prior consent and knowledge. Photography & videography will only be of individuals who have consented prior or have otherwise agreed to be in the area where photography and videography will be taking place. All flights will occur in compliance with any state or local laws regarding privacy.

Conclusion

For the foregoing reasons, the regulatory exemptions requested herein should be granted and Petitioner should be permitted to conduct small UAS operations in accordance with its manuals and all operating parameters deemed necessary applicable by the FAA.

Respectfully submitted,

By _____

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By _____

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