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

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

August 5, 2015

Exemption No. 12356
Regulatory Docket No. FAA–2015–0979

Mr. Douglas D. Hahn
Counsel for Image Studios Inc.
Menn Law Firm, Ltd.
2501 East Enterprise Avenue
P.O. Box 785
Appleton, WI 54912-0785

Dear Mr. Hahn:

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 April 3, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Image Studios Inc. (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 Vision Plus.

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] and closed set motion picture and filming. 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, Image Studios Inc. 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 and closed set motion picture and filming. 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, Image Studios Inc. 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 Plus 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 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

MENN
LAW FIRM LTD.

2501 East Enterprise Avenue
P.O. Box 785
Appleton, WI 54912-0785
p 920.731.6631
f 920.734.0981

Douglas D. Hahn
Douglas-Hahn@mennlaw.com
Direct Phone: 920.560.4718

April 3, 2015

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

RE: Image Studios Inc. Submission of Request for Authorization to Conduct Unmanned Aircraft Systems Operations Allowed by Section 333 of the FAA Modernization and Reform Act of 2012 Through the Exemption Process Identified Under 14 C.F.R. § 11.81

Dear Sir/Madam:

This firm represents Image Studios Inc. in its exemption request pursuant to section 333 of the FAA Modernization and Reform Act of 2012 in order for Image Studios to operate its unmanned aircraft system (UAS) for the purposes of photography and videography.

The enclosed petition provides the specific sections from 14 C.F.R. from which Image Studios seeks exemptions, the reason relief is sought, how the exemptions would provide a level of safety at least equivalent to the rule, and how the exemptions benefit the public as a whole.

Petitioner also provides additional information in the form of the UAS (DJI Phantom 2 Vision Plus) Quick Start Guide, Pilot Training Guide v1.1, and User Manual v1.8.

Thank you for your consideration of this petition.

Very truly yours,

MENN LAW FIRM, LTD.

Douglas D. Hahn

IMAGE

Image Studios Inc.

Michael Leschisin
1100 S. Lynndale Drive
Appleton, WI 54914
920-738-4080
mleschisin@imagestudios.com

April 3, 2015

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

RE: Image Studios Inc. Submission of Request for Authorization to Conduct Unmanned Aircraft Systems Operations Allowed by Section 333 of the FAA Modernization and Reform Act of 2012 Through the Exemption Process Identified Under 14 C.F.R. § 11.81

Dear Sir/Madam,

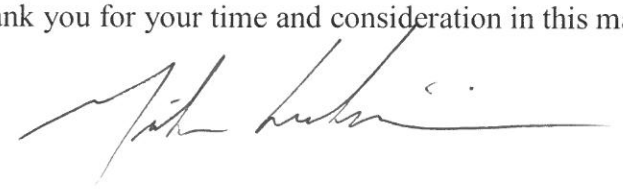
Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (The Reform Act), Image Studios Inc. ("Petitioner"), hereby applies for an exemption from the Federal Aviation Regulations (FARs) to allow commercial operation of an unmanned aerial system (UAS) for aerial photography and videography in advertising campaigns within the United States National Airspace System (NAS) so long as operations are conducted within and under the conditions outlined herein or as may be established by the FAA as required by Section 333.

This request is separate from any Certificate of Authorization/Waiver (COA) requested.

Section 333 of The Reform Act allows the Secretary of Transportation to determine if certain UAS may operate safely in the national airspace based on, "their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight. . ." as to not create a hazard to users of the national airspace system or the public, and not pose a threat to national security.

Pursuant to 14 C.F.R. § 11.81, contained within is detailed information on why the approval of the request is in the best interests of the public and how the approval will, ". . . provide a level of safety at least equal to that provided by the rule from which," exemption is sought.

Thank you for your time and consideration in this matter.



Michael Leschisin
Partner/Owner
Image Studios Inc.

Applicant Contact Information:

Image Studios Inc.
Attn: Michael Leschisin
1100 S. Lynndale Drive
Appleton, WI 54914
920-738-4080
mleschisin@imagestudios.com

Table of Contents

I. Company Background

Petitioner has provided commercial photography and videography for advertising, corporate publications, catalogs, annual reports, and websites for nearly fifty years. Petitioner continually seeks to bring new technology, techniques, and creative methods to clients in order to maximize the effectiveness of advertisement campaigns. In order to continue to provide the best in advertising campaigns, Petitioner seeks regulatory exemptions that will allow Petitioner to employ UAS technology in the photography and videography process.

II. Training and Operations

The Aircraft: DJI Phantom 2 Vision Plus

Design:

The DJI Phantom 2 Vision Plus is comprised of a UAS and a transportable ground station. It is a quad-copter that is equipped with four rotors that are driven by electronic motors and powered by batteries. It is approximately 23 inches square and 14 inches high.

Aircraft Performance/Specifications:

- Flight Controls:
  - Primary: GPS guided autopilot (lock into at least 6 satellites)
  - Backup: Standard flight controls that combine gyro, accelerometers, barometer and compass for navigation
- Power Supply: Battery – 5200 mAh lithium-polymer
- Speed: Maximum airspeed of 30 knots
- Flight Time: Maximum of 25 minutes
- Weight: Approximately 3 lbs including battery and propellers

Aircraft Registration:

The UAS will be identified by serial number and registered in accordance with 14 C.F.R. § 47, and have an identification markings in accordance with 14 C.F.R. § 45 Subpart C. These markings will be made as large as is practicable on the UAS in accordance with 14 C.F.R. § 45.29 (f).

Maintenance Standards:

- Pilot in charge (PIC) must determine whether UAS is in condition for safe flight.

- Pre and post flight inspections will be routinely conducted.
- Maintenance will be performed in accordance with the manufacturer's guidelines and by certified technicians.
- All inspections and maintenance will be documented in house.
- After maintenance, certified technicians will verify the UAS is ready for flight.

PIC Training:

- PIC will:
    - Have a private pilot license;
    - Have a third-class airman medical certificate;
    - Meet the minimum flight hour requirements required by the FAA in Exemption No. 11062 (Astraeus) and in a manner consistent with 14 C.F.R. § 61.51(b), defined below
        - **Flight hours:** PIC must complete 25 hours of total time as a UAS rotorcraft pilot. Included in these 25 hours, the PIC must log at least 10 hours as a UAS pilot with a multi-rotor UAS and at least 5 hours operating the DJI Phantom 2 Vision Plus. Training, proficiency, and experience building flights can also be conducted under the grant of exemption to accomplish the required flight time. During training, proficiency, and experience-building flights, the PIC is required to operate the UAS within appropriate distances in accordance with 14 C.F.R. § 91.119. Pursuant to Exemption No. 11138 (Trudeau).
        - **Skills:** The PIC must accomplish 3 take-offs and landings in the preceding 90 days (for currency purposes).
        - **Manufacturer's Certification and Training:** PIC must review all DJI Phantom 2 Vision Plus manuals, training and quickstart guides, and tutorials. These will be updated from time to time and PIC is required to keep up to date with these manuals, guides, and tutorials.
        - **Prior Documented Flight Experience:** Prior documented flight experience that was obtained in compliance with applicable regulations will satisfy the flight hours requirement.

Visual Observer:

- Must complete all training contained in Operating Documents.
- Must maintain sight of UAS at all times.
- Does not need an airman medical certificate.

Operations Execution

Given the fact that commercial UAS operations are restricted due to the lack of regulations, a logical and safe solution is to utilize the parameters of model aircraft operation outlined in Section 336 of PL 112-95 as well as other guidelines found within 14 C.F.R.

The following list provides specific rules and guidelines all Petitioner UAS operations will adhere to in order to ensure at least an equivalent or higher level of safety when compared to manned aircraft performing the same functions as outlined in 14 C.F.R.:

1) All flight crews will:
   - Be comprised of a minimum of 3 members. One for piloting, one for visual observation, and one for camera operation.
   - Perform pre flight operations to ensure the safety of the flight in accordance with C.F.R. § 91.103 (b) (1) and (2), excepting the Aircraft and Rotorcraft Manual requirements of the regulation, including reviewing:
     - Weather such as wind speeds that will affect the flight or cloud cover and sun glare that will affect visibility of the UAS or other aircraft;
     - Flight battery requirements;
     - Landing and take-off distances;
     - Aircraft performance data; and
     - Relevant site specific conditions.
   - Schedule flight in a daily production sheet.
   - Inform all persons on site of the flight plan and the UAS's operation.

2) All flight operations will:
   - Fly below 400 feet and remain clear of surrounding obstacles.
   - Keep the aircraft within visual line of sight at all times.
   - Remain well clear of and not interfere with manned aircraft operations.
   - Not fly within 5 miles of an airport unless contact is made with the airport and control tower before flying.
   - Not fly near groups of people, stadiums or members of the general public.
   - Be conducted using a UAS weighing less than 55 lbs.
   - Not fly in a careless or reckless manner.
   - Limit flight to days when weather will not create unnecessary safety risks.
   - Limit flight to remote areas away from the public, and if possible conducted on a closed set.
   - Be conducted with the permission of property owner or controller where the flight is taking place.
   - Have a predetermined flight plan that all crew members are aware of.

- Take place 500 feet away from non-participating persons, vessels, vehicles, and structures. Non-participating means those persons, vessels, vehicles, and structures that are not associated with the UAS photography or videography production.
- Brief participating persons on the potential risks of the proposed flight operations. Participating persons must acknowledge and accept the risks.
- Utilize a barrier including terrain features, obstructions or buildings for non-participating persons in the event the UAS will fly closer than 500 feet to them. Pursuant to Exemption No. 11189 (Video Solutions).
- Conduct flight at a safe distance from participating persons as to not present an undue hazard to the essential person.
- Be conducted during daylight.

For safety, the UAS is equipped with preprogrammed and user programmable flight limits. GPS coordinates for Restricted Flight Areas including all airports worldwide are preprogrammed into the UAS. The UAS will not take off or fly in these restricted areas in either mode of navigation and if flown into restricted airspace, will automatically descend and land.

The UAS is also equipped with user programmable flight limits. The programmable flight limit functions allows the UAS pilot to set a "maximum distance from a home point," (generally the location of the pilot), and a maximum altitude that the UAS will not fly beyond, in Petitioner's case, the UAS will be programmed to allow for the distance of required filming, but no further.

3) Emergency Procedures : Failsafe Mode

- <u>Pilot Activated or Loss of Communication</u>

The DJI Phantom 2 Vision Plus is equipped with failsafe mode. Failsafe mode is activated if communication between the RC controller is broken or if the pilot activates it. It causes the aircraft to climb to a programmable altitude that is set by the operator to avoid obstacles, and fly at that altitude to a preset "home point", which will generally be the takeoff location, and land.

- <u>Loss of Power</u>

The DJI Phantom 2 Vision Plus is also equipped with failsafe protection in the event the battery is running low. The aircraft will monitor the battery level throughout the flight and if the battery reaches a level of 30%, the UAS will communicate with the pilot via a flashing red screen and alarm on the Vision 2 app, which is used on a smart device via WiFi, as well as flashing red lights on the aircraft itself. The Vision 2 app is used in conjunction with the RC controller. Once the UAS reaches a battery level of 15%, the UAS will enter failsafe mode, return to the home point, and land.

III. Regulations – Exemption Requested

Pursuant to 14 CFR § 11.81(b) and (e), Petitioner seeks exemptions from the below mentioned regulations and provides reasons as to why the exemptions should be approved based on the level of safety at least equal to what the rule requires.

a. 14 C.F.R. § 21 Subpart H; 14 C.F.R. § 91.203 (a) (1): Airworthiness Certificates

Subpart H, entitled Airworthiness Certificates, establishes the procedural requirements for the issuance of airworthiness certificates as required by 14 C.F.R. § 91.203 (a) (1).

An exemption from 14 C.F.R. § 21 subpart H meets the requirements of an equivalent level of safety under § 11 and § 333 of The Reform Act considering the UAS's "size, weight, speed, operational capability and proximity to airports and populated areas . . ."

The UAS measures 14 inches tall and 23 inches square. It weighs just 3 lbs., can achieve a maximum flight speed of just 30 knots, and a maximum flight time of 25 minutes. It does not carry passenger, pilot, or flammable or explosive materials, liquids, or fuels. As stated in the Operations Execution section above, the UAS will operate in compliance with the model aircraft operation parameters and will be programmed before each flight to only the areas necessary for Petitioner's specific job. Further, the UAS is able to respond to a loss of GPS, controller communication, or battery power with a pre-coordinated, predictable, automated flight maneuver known as fail safe mode. These safety features provide an equivalent level of safety compared to a manned aircraft holding a restricted airworthiness certificate performing a similar operation.

b. 14 C.F.R. § 61.113 (a) and (b) and § 61.133(a)(1)(ii) – Private and Commercial Pilot Privileges and Limitations

14 C.F.R. § 61.113 (a) and (b) states that, "(a) . . . no person who holds a private pilot certificate may act as a 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 a pilot in command of an aircraft (b) A private pilot may, for compensation or hire, act as a 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 (2) The aircraft does not carry passengers or property for compensation or hire."

14 C.F.R. § 61.133 (a) (1) states, " . . . A person who holds a commercial pilot certificate may act as a pilot in command of an aircraft . . . (ii) For compensation or hire, provided the person is qualified in accordance with this part and with the applicable parts of this chapter that apply to the operation."

§ 61.113 (a) and (b) limits private pilots to non-commercial operations. But, because the UAS will not be carrying a pilot or passengers, will operate in the NAS over property which they have been granted permission by the property owner/controller, and the airmanship skills necessary to operate a UAS are not as extensive as those necessary to operate a commercial airliner, an equivalent level of safety can be achieved by requiring the pilot operating the UAS to have a private pilot's license and a third-class airman medical certificate. Further, the area of operation of the UAS will be controlled and restricted and all flights are planned and coordinated in advance using the UAS's pre-programmed flight limits. Unlike a conventional commercial aircraft with pilot and passengers, a UAS operated by a private pilot exceeds the level of safety provided in § 61.113 and § 61.133.

Petitioner requests the same relief as was granted in Exemption No. 11172 (Blue-Chip) and Exemption No. 11062 (Astraeus).

c. 14 C.F.R. § 91.7(a) – Civil Aircraft Worthiness

This regulation states that, "no person may operate a civil aircraft unless it is in an airworthy condition."

As there will be no airworthiness certificate issued for the aircraft, should this exemption be granted, no FAA regulatory standard will exist to determine airworthiness. Given the size of the aircraft and Petitioner's maintenance standards, an equivalent level of safety will be provided.

d. 14 C.F.R. § 91.9 (b)(2) – Civil Aircraft Flight Manual in the Aircraft

This section provides, "No person may operate a U.S. registered civil aircraft - . . . (2) For which an Airplane or Rotorcraft Flight Manual is not required by § 21.5 of this chapter, unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards or any combination thereof."

The UAS, given its size and shape has no ability to place or carry such a flight manual on the aircraft. An equivalent level of safety will be maintained by keeping the flight manual at the ground control point where the pilot flying the UAS will have immediate access to it.

e. 14 C.F.R. § 91.109 – Flight instruction

This section prohibits operation of a civil aircraft, other than a manned free balloon, that is being used for flight instruction unless the aircraft has fully functioning dual controls.

The majority of UAS and remotely piloted aircraft by their design do not have fully functional dual controls. Generally, they are developed with a single operational control through the use of pre-determined GPS enabled waypoints programmed before flight in addition to the use of a single hand held transmitter or control station controlled by the pilot. This design does not allow for dual controls during flight training.

An equivalent level of safety will be ensured during training operations based on the size and speed of the aircraft coupled with the lack of pilots, passengers, and flammable liquids and fuels, by utilizing the same flight planning process as normal operations.

f. 14 C.F.R. § 91.119 – Minimum Safe Altitudes

This section establishes safe altitudes for the operation of civil aircraft and states, "[e]xcept 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."

Petitioner will achieve an equivalent level of safety because UAS operation will be conducted below 400 feet in accordance with the model aircraft operation parameters. In open areas, the UAS will not be operated within 500 feet of any non-essential persons, vehicles, vessels, or structures. The UAS may be operated within 500 feet of essential flight personnel when operations are necessary, provided operations will not cause an undue hazard to an essential person. In areas which are not open areas, the PIC shall make a safety assessment. If barriers or structures are present that can sufficiently protect non-essential persons from the UAS or debris in the event of an accident, then the UAS may operate closer than 500 feet to persons afforded such protection, for so long as the persons remain under such protection. The operator shall immediately cease operations in a safe manner when such non-essential persons leave their protection and the UAS is within 500 feet. Petitioner may conduct operations closer than 500 feet to vessels, vehicles, and structures only when the owner/controller of any such vessels, vehicles, or structures grants permission for the operation and the PIC makes a safety assessment of the risk of operating closer to those objects and determines that it does not present an undue hazard.

g. 14 C.F.R. § 91.121 – Altimeter Settings

This section states, "[e]ach 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 . . ."

UASs are equipped with GPS which provides altitude and geo-location data, rather than a barometric altimeter. An equivalent level of safety will be achieved by utilizing the DJI Phantom 2 Vision Plus software during flight which allows the PIC to view real time altimeter readings via a WiFi signal to a smart device and by the PIC confirming the altitude of the UAS at launch and in flight. Further, the DJI Phantom 2 Vision Plus emergency procedures commence landing if contact with the pilot is broken.

h. 14 C.F.R. § 91.151(a) – Fuel Requirements for Flight in VFR Conditions

This section states, "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 for at least 30 minutes . . ."

This regulation is written based on the capabilities of traditional aircraft which have flight times of several hours or greater. UAS on the other hand, generally only have flight times of an hour or less. The DJI Phantom 2 Vision Plus only has a maximum flight time of 25 minutes. In order to ensure an equivalent level of safety, once the UAS reaches a power level of no less than 20%, Petitioner will begin return to home procedures and initiate a landing sequence.

i. 14 C.F.R. § 91.405(a), § 91.407(a)(1), § 91.409(a)(2) and § 91.417(a) and (b) – Maintenance Inspections

§ 91.405 (a) states, "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 . . ."

§ 91.407 (a)(1) states, "No person may operate any aircraft that has undergone maintenance, preventative maintenance, rebuilding, or alteration unless – (1) it has been approved for return to service by a person authorized under § 43.7 of this chapter . . ."

§ 91.409 (a)(2) states, "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 - . . . (2) An inspection for the issuance of 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."

§ 91.417 (a) and (b) states, "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 . . . (b) The owner or operator shall retain the following records for the periods prescribed . . ."

Given that these sections and part 43 only apply to aircraft with an airworthiness certificate, these sections will not apply to Petitioner, and therefore an exemption is required. An equivalent level of safety can be achieved because the UAS is small, has a 25 minute flight time, and will be operated in restricted and controlled areas. Once the UAS reaches a power level of no less than 20%, Petitioner will begin return to home procedures and a initiate landing sequence. Therefore, if mechanical issues do arise, the UAS will land immediately within the controlled operating

area. Further, an equivalent level of safety is achieved through Petitioner's maintenance standards. Petitioner will routinely conduct pre and post flight inspections and maintenance will be performed in accordance with the manufacturer's guidelines and by certified technicians. All inspections and maintenance will be documented in house. After maintenance, certified technicians will verify the UAS is ready for flight.

IV. Public Interest and Safety

The Public's best interest is achieved by the safe integration of UAS into the NAS. With the ongoing exemption process, the FAA has to identify those exemption requests with the public's best interest in mind and select the companies who will be able to achieve this in a safe and responsible manner in order to pave the way for commercial use of UAS. Petitioner is one of these companies.

Petitioner will provide aerial photography and videography utilizing UAS in strict operating environments. The use of UAS in this field will benefit the public by encouraging a higher level of creative work at a lower cost to clients which will allow these clients to become more profitable. The increase in profitability can create a larger customer base for the client, which can therefore increase demand of their products, and ultimately lead to more jobs, increased wages, and the growth of the overall economy in Petitioner's region.

Further, the use of UAS in this field will benefit the public by utilizing a safer aircraft for creative purposes. Aerial photography and videography has been limited to manned fixed wing aircraft and helicopters. These aircraft can weigh 5000 lbs. or more and are operated by an on board pilot, in addition to other onboard crew members, as necessary. In comparison, Petitioner's aircraft weighs just 3 lbs. and the pilot and crew will be remotely located from the aircraft. The limited weight of the aircraft significantly reduces the potential for harm to persons or damage to property in the event of an incident or accident while the risk to onboard pilot and crew is eliminated.

Further, manned aircraft can carry 100 gallons or more of fuel and therefore are at risk of fuel spillage or fire in the event of an incident or accident. The DJI Phantom 2 Vision Plus carries no fuel and therefore the risk of fire following an incident or accident due to fuel spillage is related.

V. Federal Register Summary

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (The Reform Act), Image Studios Inc. (Petitioner), hereby applies for an exemption from the Federal Aviation Regulations (FARs) to allow commercial operation of unmanned aerial systems (UAS) for aerial photography and videography in advertising campaigns within the United States National Airspace System (NAS) so long as operations are conducted within and under the conditions outlined herein or as may be established by the FAA as required by Section 333.

Section 333 of The Reform Act allows the Secretary of Transportation to determine if certain UASs may operate safely in the national airspace based on, "their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight. . ." as to not create a hazard to users of the national airspace system or the public, and not pose a threat to national security.

Petitioner has provided commercial photography and videography for advertising, corporate publications, catalogs, annual reports, and websites for nearly fifty years. Petitioner continually seeks to bring new technology, techniques, and creative methods to clients in order to maximize the effectiveness of advertisement campaigns. Petitioner has a vested interest in seeing that the UAS is operated safely, so as not to tarnish Petitioner's business reputation. In order to continue to provide the best in advertising campaigns, in a safe and reasonable way, Petitioner seeks regulatory exemptions that will allow Petitioner to employ UAS technology in the photography and videography process.

Regulations from which an exemption is requested:

a. 14 C.F.R. § 21 Subpart H; 14 C.F.R. § 91.203 (a) (1) – Airworthiness Certificates
b. 14 C.F.R. § 61.113 (a) and (b) and § 61.133(a)(1)(ii) – Private and Commercial Pilot Privileges and Limitations
c. 14 C.F.R. § 91.7(a) – Civil Aircraft Worthiness
d. 14 C.F.R. § 91.9 (b)(2) – Civil Aircraft Flight Manual
e. 14 C.F.R. § 91.109 – Flight instruction
f. 14 C.F.R. § 91.119 – Minimum Safe Altitudes
g. 14 C.F.R. § 91.121 – Altimeter Settings
h. 14 C.F.R. § 91.151(a) – Fuel Requirements for Flight in VFR Conditions
i. 14 C.F.R. § 91.405(a), § 91.407(a)(1), § 91.409(a)(2) and § 91.417(a) and (b) – Maintenance Inspections

Through this exemption request, Petitioner has shown that they will ensure the public's best interest during UAS operation. The small size, weight, and speed of Petitioner's UAS combined with extensive safety precautions ensures that Petitioner will safely operate UASs. Petitioner has also shown how approval of this request will meet and/or exceed an equivalent level of safety for the exemptions requested.