

Modovolate Aviation, LLC

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22 April 2015

Hon. Michael Huerta
Administrator
Federal Aviation Administration
U. S. Department of Transportation
Docket Management System
1200 New Jersey Ave., SE
Washington, DC 20590

Re: Summary Exemption Request under Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations from certain parts of the FARs.

Dear Administrator Huerta:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the Reform Act) and 14 C.F.R. Part 11, Modovolate Aviation, LLC, an Illinois limited liability company ("Movo Aviation," the "LLC, or the "Petitioner"), hereby applies for a summary exemption from the listed Federal Aviation Regulations ("FARs") to allow it to operate small Unmanned Aircraft Systems ("sUAS") for aerial data collection, under the conditions and limitations set forth in this Petition.

The requested exemption would permit the operation of small, unmanned and relatively inexpensive sUAS under controlled conditions in airspace that is (1) limited, (2) predetermined, and (3) would provide safety enhancements to the already safe news gathering operations presently using manned helicopters and airplanes. Approval of this exemption would thereby enhance safety and fulfill the FAA Administrator's responsibilities to "...establish requirements for the safe operation of such aircraft systems in the national airspace system." Section 333(c) of the Reform Act.

The name and address of the applicant is:

Modovolate Aviation, LLC
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Regulations from which the exemption is requested:

14 CFR Part 21

14 C.F.R. § 45.23(b)

14 CFR § 61.3

14 C.F.R. § 91.7 (a)

14 CFR § 91.9 (b) (2)

14 C.F.R. § 91.103

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 § 91.205(b)

14 CFR § 91.215

14 CFR § 91.405 (a)

14 CFR § 407 (a) (1)

14 CFR § 409 (a) (2)

14 CFR § 417 (a) & (b)

The Appendix describes the FARs from which an exemption is requested and summarizes the justification for each requested exemption.

The Petition is submitted to fulfill Congress' goal under Section 333(a) through (c) of the Reform Act, which 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 rulemaking required under Section 332 of the Reform Act. In making this determination, the Administrator must determine which types of UASs 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; and
- Operation of the UAS within visual line of sight of the operator.

Reform Act § 333 (a).

If the Administrator 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." Id. § 333(c) (emphasis added).

The Secretary has delegated his aviation authority to the Administrator of the FAA.

The Federal Aviation Act expressly grants the FAA the authority to grant exemptions from its regulatory requirements for civil aircraft, a term defined under §40101 of the Act, which includes sUASs. The Administrator may grant an exemption from a requirement of a regulation prescribed under subsection (a) or (b) of this section or any sections 44702-44716 of the Federal Aviation Act if Administrator finds the exemption in the public interest. 49 U.S.C. § 44701(f) See also 49 USC § 44711(a); 49 USC § 44704; 14 CFR §91.203 (a) (1).

Modovolate Aviation, LLC, is an Illinois limited liability company organized for the purpose of conducting microdrone research, experimentation, demonstration, education and aerial photography.

Movo Aviation was formed and is jointly owned by Henry H. Perritt, Jr. and Eliot O. Sprague.

Henry H. Perritt, Jr., the Chief Executive Officer of the LLC and its General Counsel, is a law professor and former dean at Chicago-Kent College of Law, the law school of Illinois Institute of Technology. Holding a bachelor of science degree in aeronautics and astronautics from MIT, a master of science degree in management from MIT's Sloan School, and a juris doctor degree from Georgetown University Law Center, Mr. Perritt has written dozens of law review articles and several books on how the law should adapt to technological innovation. He is a private helicopter and airplane pilot, with an instrument airplane rating.

Eliot O. Sprague is Chief Operating Officer of the LLC. A graduate of Hillsboro Aero Academy, he is a full-time news helicopter pilot, helicopter flight instructor, director for a Chicago-area on-demand commercial helicopter operator, and a member of the board of directors of Midwest Helicopter Association. He is intimately familiar with commercial aviation and familiar with the threats that unregulated microdrone flight present to the safety of himself, his coworkers, his passengers, and to persons and property on the ground. He holds commercial helicopter and airplane, instrument helicopter, commercial flight instructor-rotary wing, and commercial flight instructor – instrument-rotary wing ratings.

Messrs Perritt and Sprague have authored a number of articles published in aviation and journalism magazines and in law reviews explaining how sUAS can enhance the public interest, boost economic productivity and be operated so as to assure the safety of the national airspace system.

The Petitioner and its officers have flown a variety of sUAS for recreational and hobbyist purposes, including the Parrot AR, the DJI Phantom, and the Cinestar 8 HL. They have assembled a Cinestar 8 HL, and a Birdseye View FireFLY6 tiltrotor.

Now, a number of people, some professional colleagues and some strangers, have heard about Petitioner's activities and are pressing Petitioner to undertake aerial data collection for compensation.

The Petitioner has been advised by counsel that this is not now permissible unless he obtains special permission from the FAA. Many competitors of Petitioner are actively flying sUAS to conduct aerial photography for commercial purposes, notwithstanding the FAA's stated prohibition. Petitioner also notes and has read the congressional mandate in sections 332 and 333 of the FAA Revitalization and Reform Act of 2012 that

the FAA move quickly to accommodate the economic and societal benefits that can result from widespread deployment of sUAS technology. Accordingly, Petitioner applies for authorization under the Federal Aviation Act, and the FARs rules to undertake the following activities for commercial purposes. Unless the Petition is granted, Petitioner will be at a significant competitive advantage if it, as it prefers, complies with FAA policy.

Vehicle

The Petitioner will fly the following sUAS:

- DJI Phantom 3
- DJI Inspire
- Cinestar 8 HL
- 3DRobotics IRIS+
- FreeFly ALTA

All these vehicles have built in capability to limit the height they fly above the ground, to limit the radius of the distance the fly from the operator, and to exclude them from class B, C, and D airspace. The vehicles also have the built-in capability to return to the launching point if the wireless control link is interrupted or if the operator attempts to exceed any of the height, radius, or airspace limitations programmed into it.

The largest vehicle—the Cinestar 8 HL-- weighs about five pounds empty and has a maximum gross weight of approximately twenty pounds. The others weigh less and have correspondingly smaller payloads. All of them have top speeds of about 30 knots. All of them are multicopters with fixed-pitch rotors, thrust from which is varied by changing RPM. All of them are powered by lithium polymer batteries.

Flight profiles

The Petitioner will program its aircraft so that they will not fly above 400 feet above ground level, or more than 1500 feet away from the operator. The operator will carefully preflight the vehicle before each mission to assure that its compass and GPS system are properly calibrated and that the return-to-home feature, altitude, and radius limitations work.

The operator will operate its vehicles on aerial data collection, aerial photography, news gathering, training, and demonstration missions only under the following circumstances:

1. The UA will not be operated at a speed exceeding 87 knots (100 miles per hour). In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.
2. The UA will be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude will be reported in feet AGL.
3. The UA will be operated within visual line of sight (VLOS) of the PIC at all times. The PIC will 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.
4. All operations will utilize a visual observer (VO). The UA will 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 will be able to communicate orally at all times; electronic messaging or texting will not occur during flight operations. The PIC will be designated before the flight and will not transfer his or her designation for the duration of the flight. The PIC will ensure that the VO can perform the duties required of the VO.
5. The requested exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations of the requested grant of exemption, are hereinafter referred to as the operating documents. The operating documents will be accessible during UAS operations and will be 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 will take precedence and be followed. Otherwise, the operator will follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents, and track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request.

6. If the operator determines that any update or revision would affect the basis upon which the FAA granted the requested exemption, the operator will petition for an amendment to its grant of exemption.
7. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g. replacement of a flight critical component, will undergo a functional test flight prior to conducting further operations under the requested exemption. Functional test flights will only be conducted by a PIC with a VO and will remain at least 500 feet from other people. The functional test flight will be conducted in such a manner so as not to pose an undue hazard to persons and property.
8. The operator will maintain and inspect the UAS to ensure that it is in a condition for safe operation.
9. Prior to each flight, the PIC will conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection will 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 will not be operated until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.
10. The operator will follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.
11. Each UAS operated under the requested exemption will comply with all manufacturer safety bulletins.
12. All PICs will hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC will 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 will 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.
13. The operator will 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 will 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 safely to operate the UAS in a manner consistent with how the UAS will be operated under this exemption will occur under the terms of the requested exemption. Training operations will 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 will operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

14. UAS operations will not be conducted during night, as defined in 14 CFR § 1.1. All operations will be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.
15. The UA will 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 will be made available to the Administrator or any law enforcement official upon request.
16. The UA will 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.
17. If the UAS loses communications or loses its GPS signal, the operator will cause the UA to return to a predetermined location within the private or controlled-access property.
18. The PIC will abort the flight in the event of unpredicted obstacles or emergencies.
19. The PIC will not begin 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.
20. All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder will apply for a new or amended COA if it intends to conduct

operations that cannot be conducted under the terms of the COA attached to the requested exemption.

21. All aircraft operated in accordance with this exemption will 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 will be as large as practicable.
22. 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 will be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating.
23. These documents will be made available to the Administrator or any law enforcement official upon request.
24. The UA will remain clear and give way to all manned aviation operations and activities at all times.
25. The UAS will not be operated by the PIC from any moving device or vehicle.
26. All Flight operations will 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 will 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 will 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.
27. The PIC, VO, operator trainees or essential persons are not considered nonparticipating persons under the requested exemption.
28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA will be reported to the FAA's UAS Integration Office (AFS-80) within 24 hours.

Accidents will be reported to the National Transportation Safety Board (NTSB) according to instructions contained on the NTSB Web site: www.nts.gov.

The Petitioner's proposed operations satisfy the criteria provided in Section 333 of the Reform Act relating to size, weight, speed, operating capabilities, proximity to airports and populated areas and operation within visual line of sight and national security. The Petition justifies grant of the requested exemptions allow the Petitioner to obtain aerial photography with its sUAS.

Granting the petition would be in the public interest because:

1. The Congress of the United States has determined that early accommodation of sUAS into the National Airspace System advances the public interest. The Committee Report leading the House to adopted H.R. 658 said:

"The successful integration of unmanned aircraft systems (UAS) into the National Airspace System (NAS) can support more than 23,000 high-paying jobs in the United States. . . . The absence of a plan to integrate UASs into the NAS is a barrier to such job creation"¹

Granting the Petition represents a step toward such integration, in the absence of a comprehensive regulatory regime for sUAS, and thus would serve the Congressional goal and the public interest.

2. Granting the Petition would facilitate the creation, display, and public distribution of art, long recognized as advancing the public interest. They are at the core of the activities that the First Amendment to the United States Constitution seeks to promote and to protect from governmental restrictions.

Creative photography and video art fall well within the First Amendment's protections. "Entertainment, as well as political and ideological speech, is protected; motion pictures, programs broadcast by radio and television, and live

¹ H. R. Rep. 112-29 on H.R. 658, 112th Cong., 1st Sess. at 116. The House-Senate Conference Committee on the FAA Modernization and Reform Act of 2012 recommended amendments to H.R. 658 in lieu of amendments adopted by the Senate. Conference Report to Accompany H.R. 658, H.R. Rep. 112-381, 112th Cong., 2d Sess., at p. 1 (Feb. 1, 2012).

entertainment, such as musical and dramatic works fall within the First Amendment guarantee. "²

3. Granting the Petition would enable new forms of news coverage, enabling the public to know about and to understand newsworthy events, an activity similarly within the core of First Amendment protections. ³
4. Granting the petition would enable Petitioner to demonstrate the commercial viability of creating art and gathering news with new aeronautical technology. Commercial creative art is protected as well as non-commercial art.⁴ The Patents and Copyrights Clause of the United States Constitution and the copyright statute's protection of visual art and audiovisual works embody the proposition that more creative effort with respect to these kinds of work will be exerted when the creators are allowed to be paid for their works, thus increasing the production of artistic works.

² *Schad v. Borough of Mount Ephraim*, 452 U.S. 61, 65 (1981); *White v. City of Sparks*, 500 F.3d 953, 956 (9th Cir. 2007) (holding that self-expression through painting is protected by the First Amendment; rejecting city's argument that protection requires a political message); *Hoffman v. Capital Cities/ABC, Inc.*, 255 F.3d 1180 (9th Cir. 2001) (reversing judgment for plaintiff; use of photograph of actor as part of fashion article was protected by First Amendment despite commercial purpose); *Edme v. Internet Brands, Inc.*, 968 F. Supp.2d 519, 529-530 (E.D. N.Y. 2013) (denying summary judgment on statutory right of publicity claim; "newsworthy" broadly construed to allow public to benefit from visual images); *Hill v. Public Advocate of the United States*, ___ F. Supp.2d ___, Civil Action No. 12-cv-02550-WYD-KMT, 2014 WL 1293524 (D. Colo. Mar. 31, 2014) (holding that photograph of gay marriage was within First Amendment protection despite its use for political purposes; discussing how access to photograph advances the public interest).

³ *Glik v. Cunniffe*, 655 F.3d 78, 83-84 (1st Cir. 2011) (citing cases holding that news photography is will with First Amendment protection and that protection extends to ordinary citizens as well as reporters; affirming denial of immunity to police officers in section 1983 suit by citizen who was arrested for using cellphone camera to photograph arrest).

⁴ *White*, 500 F.3d at 956-957.

Granting the petition will allow the petitioner to respond to economic incentives to increase its creative production. The result will be an increase in the stock of artistic photography, including video for public enjoyment.

A significant part of the Petitioner's activities involve capturing and disseminating visual representations of newsworthy events. Receiving compensation for these newsgathering activities using traditional technologies incentivizes Petitioner, resulting in greater output of news. The new technologies embodied in sUAS enable different perspectives on the news not easily obtainable by traditional means. Allowing Petitioner to be compensated for using the new technologies will provide an incentive for it to intensify its collection and dissemination efforts.

The rules from which Petitioner seeks exemption artificially and irrationally limit the effective use of new technologies to enhance news gathering, thereby subverting the public interest.

5. Granting the Petition will fulfill the FAA's own declaration that encouraging new aviation technologies advances the public interest. The FAA itself has recognized the public interest in its role of "Encouraging and developing civil aeronautics, including new aviation technology."⁵ Granting the Petition will enhance FAA fulfillment of that commitment, thereby serving the public interest. Air commerce flourishes in the United States because of the rapid pace of innovation in aeronautical and associated technologies, followed by their commercialization and their introduction of the marketplace. The drone technology that the Petitioner uses exemplifies the latest innovative leap forward in aeronautical technology. Preventing it from using this in air commerce subverts achievement of the goal.
6. Granting the Petition will fulfill the Congressional determination that integrating sUAS technology into the NAS serves the public interest. Section 330 of the FAA Modernization and Reform Act of 2012, specifically recognizes the advantages to air commerce obtainable from the deployment of sUAS technologies. It mandated several steps by the FAA to accelerate the availability of these

⁵ FAA, Safety: The Foundation of Everything We Do, http://www.faa.gov/about/safety_efficiency/.

technologies in the National Airspace System, thereby representing a congressional determination that the public interest is served by making these technologies more widely available at the earliest practicable date. The Petition represents a way for the FAA to move incrementally, while still satisfying its congressional mandate and meeting its obligation to enhance the public interest by making new technologies available by allowing the use of sUAS technologies in a manner that protects the public and the rest of the aviation community from significant risk.

The commercial activities by Petitioner proposed in the Petition represent contributions to new forms of air commerce, thereby fulfilling the FAA's statutory mandate under the 2012 Act.

7. Granting the Petition will enhance aviation safety, thereby advancing the public interest. The Petitioner has committed itself in the Petition to safety practices that reduce or eliminate hazards to aircraft in the National Airspace System and to persons and property on the ground. Many others are flying sUAS without regard to these hazards. Granting the Petition will offer the Petitioner up as an example of how the FAA is willing to accommodate the new technology when it is constrained by appropriate limitations to enhance safety. It will also allow the Petitioner to be a role model for safe commercial sUAS operations.

Users of the National Airspace System are confronted by mushrooming threats from sUAS flown in defiance of the FAA's ban. Unless the FAA shows some flexibility to accommodate lawful and safe operation of sUAS for legitimate commercial purposes, the level of defiance will increase, intensifying the hazards to manned aircraft and to persons and property on the ground.

The Petition to use a UAS for aerial data collection and its proposed limitations are similar in all material respects to those approved by the FAA 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), 11213 to Aeryon Labs, Inc. (see Docket No. FAA-2014-0642) and 11310 to Colin Hinkle (see Docket No. FAA-2014-0608). In those grants 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

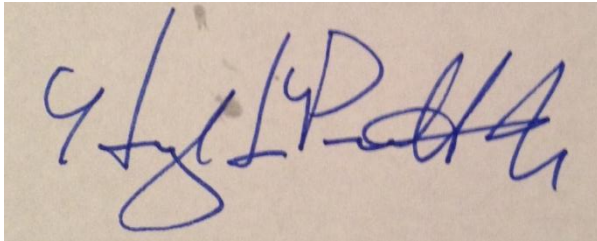
than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, 11213, and 11310 also apply to the situation presented by this Petition.

Respectfully submitted,

Modovolate Aviation, LLC,

By its General Counsel:

A handwritten signature in blue ink on a light-colored background. The signature is cursive and appears to read "H. Perritt, Jr." with a stylized flourish at the end.

Henry H. Perritt, Jr.

Appendix

FAR section	Subject	Justification
14 CFR § 45.23(b)	Requirement to display registration number on vehicle	Insufficient space on vehicle
14 CFR Part 21	Aircraft certification requirements and procedures	Designed for manned aircraft; not suitable for off-the-shelf sUAS
14 CFR § 61.3	Requirement for pilot certificate	Part 61 requirements designed for manned aircraft, not sUAS; petition describes training for sUAS operator
14 CFR § 91.7 (a)	Airworthiness requirement	Designed for manned aircraft; not suitable for off-the-shelf sUAS
14 CFR § 91.9 (b) (2)	Requirement for manual to be available in the cockpit	No one aboard to read manual
14 CFR § 91.103(b)	Requirement for crew members to be onboard	Unmanned vehicle
14 CFR § 91.109	Requirement for dual controls during flight instruction	No one aboard to operate controls
14 CFR § 91.119	Minimum altitudes for safe flight	Safety requires operation below these altitudes
14 CFR § 91.121	Altimeter settings	No one aboard to read altimeter
14 CFR § 91.151(a)	Fuel requirements	Vehicle does not use fuel
14 CFR § 91.203 (a) & (b)	Requirement for registration and airworthiness certificates to be onboard	No one aboard to read certificates
14 CFR § 91.205(b)	Cockpit instruments	No one aboard to read

	requirement	instruments
14 CFR § 91.215	Transponder requirement	Vehicle has insufficient useful load; will be operated below ATC radar coverage
14 CFR § 91.405 (a)	Inspection requirements	Designed for manned aircraft; not suitable for off-the-shelf sUAS
14 CFR § 91.407(a) (1)	Inspection approval requirements	Designed for manned aircraft; not suitable for off-the-shelf sUAS
14 CFR § 91.409 (a) (2)	Airworthiness inspection	Designed for manned aircraft; not suitable for off-the-shelf sUAS
14 CFR § 91.417 (a) & (b)	Maintenance records requirements	Designed for manned aircraft; not suitable for off-the-shelf sUAS