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

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

May 22, 2015

Exemption No. 11680
Regulatory Docket No. FAA–2015–0716

Mr. Enrique García Melchor
EGM100x35 Aerial Solutions
P.O. Box 366726
San Juan, Puerto Rico 00936

Dear Mr. Melchor:

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

By letter dated March 17, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of EGM100x35 Aerial Solutions (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. 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, EGM100x35 Aerial Solutions is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, EGM100x35 Aerial Solutions 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 5 minutes or with the reserve power recommended by the manufacturer if greater.

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

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

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

These documents must be made available to the Administrator or any law enforcement official upon request.

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

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

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

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

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

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

If this exemption permits operations for the purpose of closed-set motion picture and television filming and production, the following additional conditions and limitations apply.

29. The operator must have a motion picture and television operations manual (MPTOM) as documented in this grant of exemption.

30. At least 3 days before aerial filming, the operator of the UAS affected by this exemption must submit a written Plan of Activities to the local Flight Standards District Office (FSDO) with jurisdiction over the area of proposed filming. The 3-day

notification may be waived with the concurrence of the FSDO. The plan of activities must include at least the following:

a. Dates and times for all flights;
b. Name and phone number of the operator for the UAS aerial filming conducted under this grant of exemption;
c. Name and phone number of the person responsible for the on-scene operation of the UAS;
d. Make, model, and serial or N−Number of UAS to be used;
e. Name and certificate number of UAS PICs involved in the aerial filming;
f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the filming production event; the list of those who gave permission must be made available to the inspector upon request;
g. Signature of exemption holder or representative; and
h. A description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which filming will be conducted and the altitudes essential to accomplish the operation.

31. Flight operations may be conducted closer than 500 feet from participating persons consenting to be involved and necessary for the filming production, as specified in the exemption holder's MPTOM.

Unless otherwise specified in this grant of exemption, the UAS, the UAS PIC, and the UAS operations must comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

This exemption terminates on May 31, 2017, unless sooner superseded or rescinded.

Sincerely,

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

Enclosures

EGM100x35 Aerial Solutions
El Vedado 112 Padre Las Casas
San Juan, Puerto Rico 00918

March 17, 2015

U.S. Dept. of Transportation, Docket Operations
West Building Ground Floor, Room w12-140
1200 New Jersey Avenue, SE,
Washington, DC 20590

Re: Exemption Request Pursuant to Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations from: 14 CFR Part 21, Subpart H; 61.23 (a); 61.113(a) and (b); 91.103; 91.109; 91.119(c); 91.121; 91.151(a); 91.405(a); 91.407(a)(1); 91.409 (a)(1) and (2); 91.417(a) and (b).

Dear Sir or Madam:

In accordance with Section 333 of the FAA Modernization and Reform Act of 2012 (the "Reform Act") and 14 C.F.R. Part 11, EGM100x35 Aerial Solutions an operator of Unmanned Aircraft Systems ("UASs") for aerial photography and video on the real estate industry, surveying, agriculture industry, construction industry, motion picture industry, television industry and special events, hereby applies for an exemption from the Federal Aviation Regulations ("FARs") to allow commercial operation of its UASs, so long as such operations are conducted within and under the conditions outlined herein or as may be established by the FAA as required by Section 333.

An exemption is being requested because (1) EGM100x35 Aerial Solutions can provide a level of safety that is equal (or greater than in many cases) to those provided by existing rules, and (2) the request is in the public interest. The FAA's authority to issue exemptions from operating rules, and the Secretary's authority granted by Section 333 of P.L. 112-95, Special Rules for Certain Unmanned Aircraft Systems, provide an opportunity to authorize certain UAS operations in the National Airspace System (NAS) prior to implementation of the UAS rule. This incremental step and opportunity will allow EGM100x35 Aerial Solutions to safely and legally enter into the NAS.

The requested exemption would permit EGM100x35 Aerial Solutions to operate UASs under controlled conditions in airspace that is (1) limited; (2) predetermined; (3) subject to controlled access, and (4) would provide safety enhancements to the already safe operations of those aircraft of similar size, weight, speed, and operating capability that have been granted entry into the NAS via the rules in Academy of Model Aeronautics (AMA) National Aircraft Safety Code.

Photos and Videos from several angles and height are far more effective than ground- based imagery for displaying the characteristics of large, complex properties with several buildings where helicopters cannot reach. It is known that charting a 2 seat full-sized helicopter or airplane for this purpose, has proven very costly and has limitations. The benefits of reduced cost, reduced noise interference, safety and improved quality of presentation from the UASs will be valuable to and benefit many real estate industry, agriculture industry, construction industry, motion picture industry, television industry, surveying and special events. The site based photography occurs in restricted or other areas where access to the public is strictly limited and controlled. Under virtually all circumstances, all of the only property or structures near the sites are owned and operated by the same entity soliciting the aerial photography services. As a result, the operation has no substantial impact on any third persons not involved in the actual site project. As established by the exemptions already granted by the FAA, approval of EGM100x35 Aerial Solutions exemption would enhance safety, new windows of opportunities and fulfill the Secretary of Transportation's (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.

Operation Overview

UASs operated by EGM100x35 Aerial Solutions weigh less than 5 pounds, including the payload (first person view system, camera and gimbal). They operate at speeds of no more than 30 knots, can hover, and can simultaneously move vertically and horizontally. EGM100x35 Aerial Solutions will only operate its UASs in line of sight (VLOS) and will operate only within the operation manuals and authorize airspace. They will routinely be operated below 200 feet above ground level (AGL), and never about 400 feet AGL. Operations will <u>always</u> be conducted in areas that are clear of all people, except the pilot in command (PIC), PIC's helper(s) or/and production crew. Such operations will insure that the UAS will "not create a hazard to users of the national airspace system or the public."

Given the small size of EGM100x35 Aerial Solutions' UASs and the restricted sterile environment within which they will operate, EGM100x35 Aerial Solutions' UAS operations adhere to the Reform Act's safety requirements. Additionally, due to the size of the UASs and the limited areas in which they will operate, approval of this application presents no national security issues. Based on the substantial level of safety surrounding the proposed operations, and the significant public benefit (enhanced safety), reduction in environmental impacts (reduced emissions and noise), the grant of the requested exemption is in the public interest. Accordingly, EGM100x35 Aerial Solutions' respectfully requests that the FAA grant the requested exemption without delay.

Aircraft

EGM100x35 Aerial Solutions operates Phantom 2 UASs manufactured by DJI, a well-known leader in quad copter technology. DJI strives to bring new perspectives to aerial work and help companies accomplish feats safer, faster, and with greater efficiency. They have an unparalleled commitment to quality and safety, a culture of constant innovation, and a focus on transforming complex technology into easy-to-use devices. The standard Phantom quad copter package includes the Phantom itself, camera, gimbal, propulsion system, flight control system, 2.4 GHz frequency remote controller.

The Phantom is about 1 foot square in size. It has a maximum ascent speed of 11 knots, a maximum descent speed of 3 knots, and a maximum flight speed of 29 knots. While operating within VLOS, the remote control has a range of 2,624 feet. The total weight (including the payload) is 2.55 pounds.

The Phantom is equipped with a DJI Naza-M V2 flight control system. This provides for incredible ease of use and stability. Pilots can control the Phantom's movements in many directions – including pitch (forward and backward), roll (left and right), elevator (up and down), and yaw (turn left or right). The flight control system can also provide Intelligent Orientation Control (IOC), failsafe, battery level warnings, and show the aircraft's current reading, direction, and approximate distance from home on the on-screen radar. The built-in GPS system aids in stabilizing the aircraft and automatically and safely returns it back to its home point in any case where communication between the remote control and quad copter are lost.

The Inertial Measurement Unit (IMU) has a built-in inertial sensor and a barometric altimeter that measures both attitude (ATTI) and altitude. The inertial measurement tells the Phantom how it's tilted. And the gyros tell it if it's rotating in any particular direction.

The Phantom's compass read geomagnetic information and assist the Global Positioning System (GPS) to accurately calculate the position and height of the aircraft. The vertical hover accuracy is +/- 2.6 ft. The horizontal hover accuracy is +/- 8.2 ft.

The Phantom has LED flight indicators beneath each of its four rotor arms. The LEDs illuminate to indicate the status of the flight control system and alert the PIC of any possible issues via established light codes.

The Phantom software has the capability to be upgraded via USB in a computer to enhanced performance with the latest software or firm available on DJI website.

Such highly advanced capabilities will ensure that the SUASs can be safely operated and "not create a hazard to users of the national airspace system or the public." As per Reform Act Section 333 (b).

Equivalent Level of Safety

The operating limitations proposed by EGM100x35 Aerial Solutions provide for at least an equivalent or higher level of safety. In an effort to join the FAA in its mission to provide the safest, most efficient aerospace system in the world and to minimize the risk to the NAS or to persons and property on the ground. EGM100x35 Aerial Solutions agrees to be bound by the following limitations and conditions when conducting commercial operations under an FAA issued exemption as set forth in operator's manual and UASs will be operated within the standards that the FAA has allowed in the AMA National Model Aircraft Safety Code:

1. The UASs will weigh less than 55 pounds.
2. Will not be flown in a careless and reckless manner.
3. Will not be flown at a location where UASs activities are prohibited.
4. Flights will be operated within line of sight of a pilot and/or observer.
5. Maximum flight time for each operational flight will be 25 minutes. Flights will be terminated at 25% battery power reserve and will occur prior to the 25 minute limit at about 15 minute flight time.
6. Flights will be operated at an altitude of no more than 400 feet AGL, and not more than 200 feet above an elevated platform from which filming is planned.
7. Minimum crew for each operation will consist of the UAS Pilot, the Visual Observer, and the production staff.
8. A UAS Pilot will be Pilot in Command (PIC). If a pilot certificate holder other than the UAS Pilot, who possesses the necessary PIC qualifications, is also present on set, that person can also be designated as PIC.
9. A briefing will be conducted for planned UAS operations prior to each day's flight. All personnel performing duties within the boundaries of the safety perimeter are required to attend.
10. The operator will file a FAA Form 7711-1, or its equivalent, as modified in light of the requested exemption, with the appropriate Flight Standards District Office ("FSDO").
11. The operator will obtain consent of all persons involved in the filming and ensure that only consenting persons will be allowed within 100 feet of the flight operation. With the advanced permission of the FSDO, operations at closer range can be approved.
12. The operator will submit a written Plan of Activities to the FSDO three days before the proposed shoot.
13. The Pilot and observer must be trained in UAS operations and have received current information on the particular UAS to be operated.
14. The Observer and pilot will at all times be able to communicate by voice and/or visual signals.
15. Written and/or oral permission from the relevant property holders will be obtained.

16. All required permissions and permits will be obtained from territorial, state, county, or city jurisdictions, including local law enforcement, fire, or other appropriate governmental agencies.
17. If the UAS loses communications or loses its GPS signal, the UAS will have the capability to return to a pre-determined location within the Security Perimeter and land.
18. The UAS will have the capability to abort a flight in case of unpredicted obstacles or emergencies. 14 C.F.R. § 61.113(a) and (b): Private Pilot

Preflight Action Plan

The PIC will follow a comprehensive pre-flight checklist to ensure that the UAS is in a condition for safe flight. This plan will be improved as needed in order to ensure all known safety precautions and/or safety precautions suggested by the manufacturer are being accounted for.

Preventative Maintenance

Comprehensive preventative maintenance plan will be followed in order to ensure the UAS's software is up-to-date, the batteries are in good health, and the aircraft itself is always ready for safe flight.

Privileges and Limitations:

Pilot in Command Sections 61.113 (a) and (b) limit private pilots to non-commercial operations. Because the UAS will not carry a pilot or passengers, the proposed operations can achieve the equivalent level of safety of current operations by requiring the PIC operating the aircraft to have a private pilot's license rather than a commercial pilot's license to operate a small UAS. Unlike a conventional manned aircraft, a UAS is remotely controlled by a ground-based operator. The operational area is controlled and restricted, and all flights are planned and coordinated in advance. The level of safety exceeds that provided by a single individual holding a commercial pilot's certificate operating a conventional aircraft. The risks associated with the use of a UAS are so diminished from the level of risk associated with commercial operations contemplated by Part 61 allowing UAS use by a private pilot as the PIC exceeds the present level of safety sought by 14 C.F.R. §61.113 (a) and (b). 14 C.F.R. § 91.103: Preflight Action Section 91.103 requires each pilot to preflight an aircraft before flight to insure the safety of flight. As FAA approved rotorcraft flight manuals will not be used, an exemption is requested. However, an equivalent level of safety will be provided. The PIC will take all actions, including reviewing weather, flight battery requirements, landing and takeoff distances, and aircraft performance data before commencement of flight.

14 C.F.R. §91.119(c): Minimum Safe Altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. Section 91.119 provides, in pertinent part, that: "except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes: .....

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

Because EGM100x35 Aerial Solutions requests authority to operate at altitudes only up to 200 feet and never above 400 feet, and not more than 200 feet above an elevated platform from which filming is planned, an exemption is needed to allow such operations. The UAS will never operate higher than 400 AGL. It will, however, be operated in a restricted area within a security perimeter, where buildings and people will not be exposed to operations without their pre-obtained consent.

The equivalent level of safety will be achieved given the size, weight, and speed of the UAS as well as the location where it is operated. No flight will be taken without the permission of property owners or local officials. Because of the advance notice to the property owners and participants in the filming activity, all affected individuals will be informed of the planned flight operations. Compared to flight operations for manned aircraft and the lack of flammable fuel, any risk associated with the proposed UAS operations is far less than conventional aircraft operating at or below 500 AGL. In addition, the low-altitude operations of the UAS will ensure separation between a UAS and conventional aircraft.

14 C.F.R. §91.121 Altimeter Settings

Section 91.121 requires each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set "...to the elevation of the departure airport or an appropriate altimeter setting available before departure." As a UAS may not have a barometric altimeter, but instead a GPS altitude data, an exemption is needed. An equivalent level of safety will be achieved by the operator.

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

Section 91.151(a) prohibits an individual from beginning "a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing, and, assuming normal cruising speed – (1) During the day, to fly after that for at least 30 minutes.

The battery powering the EGM100x35 Aerial Solutions UASs provides approximately 25 minutes of powered flight. To meet the 30-minute reserve requirement in 14 CFR §91.151, UAS flights will be limited to approximately 12-15 minutes in length. Given the limitations on the UAS's proposed flight area and its proposed operations within a predetermined location, a longer time frame for flight in daylight VFR conditions is reasonable. Furthermore, operating the UASs in a tightly controlled area where only people, property owners, or official

representatives who have signed waivers will be allowed, less than 30 minutes of reserve fuel does not engender the type of risk that §91.151(a) was intended to address.

EGM100x35 Aerial Solutions believes that safety can be achieved by limiting flights to 12-15 minutes or 25% of battery power, whichever occurs first. This restriction would be more than adequate to return the UAS to its pre-determined landing zone from anywhere in its limited operating area.

EGM100x35 Aerial Solutions is not seeking an exemption for nighttime UAS operations. 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 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...," and others shall inspect or maintain the aircraft in compliance with Part 43.

Given that these sections and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply to EGM100x35 Aerial Solutions operations. Maintenance will be accomplished by the operator. An equivalent level of safety will be achieved because the UASs are limited in size, will carry a small payload and operate only in restricted areas for limited periods of time. If mechanical issues arise, the UAS can land immediately and will be operating from no higher than 400 feet AGL. The operator will ensure that the UAS is in working order prior to flight, perform any required maintenance, and keep a log of any maintenance performed. Moreover, the operator is the person most familiar with the UAS and best suited to maintain it in an airworthy condition.

Privacy

All flights will occur over private or controlled access areas with the property owner's prior consent and knowledge. Filming will be only of people who have given their consent or otherwise have agreed to be in the area where filming will take place.

Satisfaction of the criteria provided in Section 333 of the Reform Act of 2012 (size, weight, speed, operating capabilities, proximity to airports; and populated areas and operation within visual line of sight and national security) provide more than adequate justification to grant EGM100x35 Aerial Solutions requested exemption, allowing for EGM100x35 Aerial Solutions UAS commercial operations for the aerial photography on real estate industry, agriculture industry, construction industry, motion picture, television industry, surveying and special events.

Summary for Publication

Pursuant to 14 C.F.R. Part 11, the following summary is provided for publication in the Federal Register, should it be determined that publication is needed:

EGM100x35 Aerial Solutions seeks an exemption under Section 333 from the following rules:

14 C.F.R. Part 21, Subpart H; 61.23 (a); 61.113(a) and (b); 91.103; 91.109; 91.119(c); 91.121; 91.151(a); 91.405(a); 91.407(a)(1); 91.409 (a)(1) and (2); 91.417(a) and (b) to operate commercially a small unmanned aerial vehicle or UAS.

As established by the UAS exemptions already granted by the FAA, allowing commercial operations will enhance safety by reducing risk. Conventional film operations, using turbine aircraft or helicopters, operate at low altitudes and present the risks associated with aircraft that weigh around 4,000 pounds, and which carry large amounts of Jet A fuel. Such aircraft must also fly to and from the film location. In contrast, a UAS weighing fewer than 5 pounds and powered by batteries eliminates virtually all of that risk given the small size and lack of combustible fuel. The UAS is carried, and not flown, to a film set. In this regard, the UAS carries no passengers or crew and, therefore, will not expose them to the risks associated with manned flights.

The operation of UASs conducted in the strict conditions will provide an equivalent level of safety supporting the grant of the exemption requested herein. The UASs operate at slow speeds, close to the ground, and in a sterile environment. As a result, they are far safer than conventional operations conducted with turbine airplanes or helicopters carrying fuel and flying near the ground and people.

If you have any questions or need any additional information, please contact the undersigned EGM100x35 Aerial Solutions, Attn: Enrique García Melchor.; Ph: 787-568-0522; Email: egm100x35@gmail.com; Physical Address: El Vedado 112 Padre Las Casas San Juan, Puerto Rico 00918; Mailing Address: P.O. Box 366726, San Juan, P.R. 00936

Sincerely yours,

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