New Heights Aerial Media
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U. S. Department of Transportation
Docket Management System
1200 New Jersey Ave.,
SE Washington, DC 20590

RE: Petition of New Heights Aerial Media, LLC for Exemption Pursuant to Section 333 of the FAA Reform Act

Attn: To whom it may concern

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the Reform Act) and 14 C.F.R. Part 11, New Heights Aerial Media, LLC, operator of Small Unmanned Aircraft Systems ("sUASs") equipped to conduct aerial photography and videography, hereby applies for an exemption from the listed Federal Aviation Regulations ("FARs") to allow commercial operation of its sUASs, 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 333.1

As described more fully below, 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) controlled. The proposed exemption, if granted, would allow New Heights Aerial Media, LLC to conduct commercial operations of small unmanned aircraft systems ("UAS") meeting or exceeding all of the operational and safety requirements Congress has set forth in Section 333. Page 2

New Heights Aerial Media, LLC is a media/technology company owned and run by David Farley. Mr. Farley has an Airline Transport Certificate and is type rated in two corporate jets. He has nearly 10 years flying part 135 operations and 3 years as Chief Pilot of part 135 operations. His total time is nearly 13,000hrs. Also, Mr. Farley has been active in Radio Controlled Aircraft for over 40 tears with experience in fixed wing and rotary wing aircraft.
New Heights Aerial Media, LLC plans to exploit the capabilities of Unmanned Aerial Systems to offer a multitude of services, including:
- Aerial surveying
- Event Photography/Videography
- Agriculture purposes
- Real Estate Photography
- Aerial filmmaking and photography
- Construction site inspections and monitoring

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

The Petitioner Requests Relief From the Following:
Regulations from which the exemption is requested:
14 C.F.R. Part 21
14 C.F.R. 45.23 (b)
14 C.F.R. 61.113(a) and (b)
14 C.F.R. 91.7 (a)
14 C.F.R. 91.9 (b) (2)
14 C.F.R. 91.109
14 C.F.R. 91.119
14 C.F.R. 91.121Page 3
14 C.F.R. 91.151(a)
14 C.F.R. 91.203 (a) & (b)
14 C.F.R. 91.205 (b)
14 C.F.R. 91.215
14 C.F.R. (91.401 - 91.417)

Unmanned Aircraft System sUASs are oftentimes seen as superior to helicopters due to the smaller devices cheaper equipment and personnel cost, reduced noise and as such, a much smaller environmental impact which promotes public safety.

We are petitioning for exemption to enable New Heights Aerial Media, LLC to operate a Blade 350QX2 AP upgraded to the Version 2 firmware and equipped with a two-axis camera gimbal and using a High-Def camera. This sUAS has a built-in capability to limit the height it flies above the ground, to limit the radius of the distance it flies from the operator. The Blade also has the failsafe function of the autopilot system which means when the communication between the Main Controller and the transmitter is disconnected, the outputs of all command sticks from controller will go to the center position. If the GPS signal is good enough, the system will automatically trigger Return to Home and will land safely.

Please refer to the included Blade 350QX Instruction Manual for the performance limitations and flight operations.

Aircraft weight is 24oz. with battery. The 2 Axis Camera Gimbal and Camera weigh 8oz. Gross weight will be 36oz.

A Pre-flight inspection will be performed by the PIC in accordance with the factory instruction manual. An added step will be the inspection of the propellers. A propeller will be replaced if it has any nicks and cracks with a manufacturers authorized propeller.

The sUAS will be maintained in accordance with the manufacturers instruction manual and only manufacturer's authorized replacement parts will be used.

FCC Information

This Spektrum transmitter used for controlling the sUAS complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference
received, including interference that may cause undesired operation.
The Spektrum radio transmitter used for controlling the sUAS is wireless technology which has been tested and found to be compliant with the applicable regulations governing a radio transmitter in the 2.400GHz to 2.4835GHz frequency range.
Antenna Separation Distance
When operating our Spektrum transmitter, the PIC will maintain a separation distance of at least 5 cm between his body (excluding fingers, hands, wrists, ankles and feet) and the antenna to meet RF
exposure safety requirements as determined by FCC regulations.

Pilot in Command and Observer Qualifications and Duties

The PIC will maintain at least a Private Pilot Certificate and a current Class III medical certificate, plus at least 2 hours flying time and 3 takeoffs and landings within 30 days in the type of UAS utilized in operations.
The PIC will have at least 100 hours total time and at least 30 hours flying Radio Controlled Model Aircraft of which will be 10 hours flying sUAS's.

Training will be conducted at a local Radio Control Club flying field. New Heights Aerial Media has the ability to provide "dual controls" utilizing two Spektrum transmitters with a wireless link between the transmitters. One transmitter is designated the master transmitter and the other transmitter is designated as a slave. The PIC instructor, utilizing the master transmitter, will be at all times be able assume control of the sUAS.

The PIC is responsible for the safe and efficient operation of the aircraft. Specific duties include all preflight preparation, in flight operation, post flight requirements, all procedures including but not limited to:

Safe in flight operations
Risk Mitigation to Persons and property
Airfield Suitability

The Observer must have the visual acuity to observe the sUAV and be able to communicate clearly with the PIC.
The Observers duties are;

warning the PIC of any impending obstacles in the flight path of the sUAS.
warning the PIC of any deviations in the planned flight path of the sUAS.
warning the PIC should any unauthorized personnel appear in the area of the planned flight.
The Observer will have the authority to order the PIC to terminate the flight should he feel the flight cannot be conducted safely.

General Operating Standards

• New Heights Aerial Media, LLC will only operate its sUAS in line of sight of a pilot and/or observer and will operate at sites that are a 'sufficient distance' from populated areas. Such operations will insure that the sUAS will "not create a hazard to users of the national airspace system or the public."

• Before an operation of a sUAV within 5NM of an airport with a control tower, the control tower will be called to gain permission to operate the sUAS. The PIC will give the position, altitude and the times the sUAV will be operated. The sUAS will not be operated at an altitude of over 150 feet AGL. Weather minimums will be 3 miles visibility and a 1000 foot ceiling.

Before an operation of a sUAS within 5NM of a non-tower controlled, airport operators will be notified and the PIC will give the right of way to avoid flying in the proximity of full-scale aircraft. At no time will the sUAV be operated within the final approach course and the takeoff course of any runway. The sUAV will not be operated at an altitude of over 150 feet AGL. Weather minimums will be 3 miles visibility and a 1000 foot ceiling.

• Maximum flight time for each operational flight will be 30 minutes.

• Flights will be terminated at 25% battery power reserve should that occur prior to the 30 minute limit.

• The sUAV will be programmed so that it will not 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.

• Minimum crew for each operation will consist of the sUAS Pilot, and Visual Observer.

• The sUAV operated by the petitioner weighs less than 55 pounds, including the payload (i.e. camera, lens, and gimbals).

• The sUAV will operate at speeds of no more than 25 knots, can hover, and can simultaneously move vertically and horizontally.

• Given the small size of the sUAV and the restricted sterile environment within which they will operate, our sUAV operations adhere to the Reform Act's safety requirements.

The UAS, powered by batteries, is smaller, lighter and more maneuverable than larger aircraft running on combustible fuel, it operates at lower altitudes with no people on board and will thereby reduce current risk levels and thereby enhance safety and diminish the likelihood of death or serious bodily injury. With a small payload and maximum flight time of only 20 minutes, this is offers little or no risk to national security.

Low level oblique photos and video from several angles are far more effective than ground based imagery for displaying the characteristics of large, complex properties with several buildings and large trees. The applicants in the past have chartered 2-seat full-sized helicopters for this purpose, which has proven more costly than many potential clients have been able to afford. The benefits of reduced cost and improved quality of presentation from the UA will be valuable to and benefit many buyers and sellers of real property.
Additionally, we request that we be allowed to use our system to benefit first responders nearby who might require assistance, including fire fighters, the police, the sheriff, et al., while remaining subject to all limitations cited in this application as we do so.
(a) No flight will be made with a Gross weight exceeding 55 pounds;

(b) All operations must occur in FAA Class G airspace at no more than 400 ft AGL, at an airspeed of no more than 25 knots and no further than 3/4 NM from the PIC;

(c) All operations must utilize a visual observer (VO). The VO and PIC must be able to communicate by voice at all times during a flight operation;

(d) Operations will be restricted to flights over private property with the permission of the property owner;

(e) All required permits will be obtained from state and local government prior to operation;

(f) New Heights Aerial Media, LLC will not be operated over densely populated areas;

(g) New Heights Aerial Media, LLC will not be operating over any open-air assembly of people;

(h) New Heights Aerial Media, LLC will not be operating over heavily trafficked roads;

(i) New Heights Aerial Media, LLC will not be operating at night.

EXEMPTION REQUESTS AND EQUIVALENT LEVEL OF SAFETY

New Heights Aerial Media, LLC requests an exemption from the following regulations as well as any additional regulations that may technically apply to the operation of the sUAV System:

14 CFR Part 21, Airworthiness Certificates

This part establishes the procedures for the issuance of an airworthiness certificate. While the FAA continues to work to develop airworthiness standards for Unmanned Aerial Systems, we request an experimental certificate be issued for the Blade 350QX2 under either or

both of the following provisions:
21.191 Experimental certificates. Experimental certificates are issued for the following purposes:
(a) ***Research and development***. Testing new aircraft design concepts, new aircraft equipment, new aircraft installations, new aircraft operating techniques, or new uses for aircraft.
(b) ***Showing compliance with regulations***. Conducting flight tests and other operations to show compliance with the airworthiness regulations including flights to show compliance for issuance of type and supplemental type certificates, flights to substantiate major design changes, and flights to show compliance with the function and reliability requirements of the regulations. Since the experimental certificate can be used for commercial purposes such as market surveys, sales demonstrations, and customer crew training, we would expect that an experimental certificate would permit our commercial purpose as well. The aircraft will not carry persons or property, will not carry fuel, and will only fly under strict operational requirements. Combined with the UA's light weight, being constructed primarily of carbon fiber and plastic, we propose that the UA will be at least as safe, if not safer, than a conventionally certificated aircraft performing the same mission. If an experimental airworthiness certificate is not appropriate for this application, then we request an exemption of 14 CFR Part 21, Subpart H, and the requirement for an airworthiness certificate in general, citing the equivalent level of safety outlined in the previous paragraph.

14 CFR 45.23 Display of marks; general and 45.29 Size of marks.
These regulations provide that each aircraft must display "N" and the aircraft's registration number in letters at least 3 inches high. Additionally, the aircraft must display the word "EXPERIMENTAL" in letters at least 2 inches high near the entrance to the cabin, cockpit, or pilot station. The sUAV does not have an entrance in which the word "EXPERIMENTAL" can be placed, and may not have a registration number assigned to it by the FAA. We propose to achieve an equivalent level of safety by including the word "EXPERIMENTAL" in the placard on the top of the aircraft, as shown above, where the PIC (Pilot In Control), VO (Visual Observer) and others in the vicinity of the aircraft while it is preparing for launch will be able to see the designation. Additionally, we feel that the permanent placard discussed in the previous paragraph will provide the aircraft's registration information at the ground station. Finally, we will display at the ground station a high contrast flag or banner that contains the words "Unmanned Aircraft Ground Station" in letters 3 inches high or greater. Since the aircraft will operate within 3/4 NM of the ground station, the banner should be visible to anyone that observes the aircraft and chooses to investigate its point of origin.

14 CFR 61.113 Private pilot privileges and limitations: Pilot in Command and 61.133 Commercial pilot privileges and limitations.
The regulation provides that no person that holds a Private Pilot certificate may act as pilot in Command of an aircraft for compensation or hire. Subparagraph (b) allows a private pilot to act as pilot in command of an aircraft in connection with any business or employment if: (1) The flight is only incidental to that business or employment; and (2) The aircraft does not carry passengers or property for compensation or hire. Our proposed operations require that the PIC must hold at least a Private Pilot Certificate with a Class III Medical issued by the FAA and since the aircraft cannot carry passengers or property, we feel we meet the intent of 61.113 Subparagraph (b) even though the intent of this application is to conduct a business.

14 CFR 91.7 Prohibits the Operation of an aircraft without an airworthiness certificate. As no such certificate will be applicable in the form contemplated by the FARs, this Regulation is inapplicable.

14 CFR 91.9 Civil aircraft flight manual, marking, and placard requirements.
This regulation provides that no person may operate an aircraft unless a current, approved flight manual is in the aircraft. We assume that the intent of this requirement is to ensure that flight manual information is available to the aircrew while operating the aircraft. We request an exemption to this requirement since the aircraft is not only too small to carry documentation, the documentation would not be available to the crew during flight operations. To obtain an equivalent level of safety and meet the intent of 91.9, we propose that a current, approved sUAS Flight Manual must be available to the crew at the ground station anytime the aircraft is in, or preparing for, flight.

14 CFR 91.109 Flight Instruction; Simulated instrument flight and certain flight tests
The regulation states that "No person may operate a civil aircraft that is being used for flight instruction unless that aircraft has fully functioning dual controls." Training will be conducted at a local Radio Control Club flying field. New Heights Aerial Media has the ability to provide "dual controls" utilizing two Spektrum transmitters with a wireless link between the transmitters. One transmitter is designated the master transmitter and the other transmitter is designated as a slave. The PIC instructor, utilizing the master transmitter, will be at all times be able assume control of the sUAV.

91.119 Minimum safe altitudes:
General. The regulation states that over sparsely populated areas the aircraft cannot be operated closer than 500 feet to any person, vessel, vehicle, or structure. Since the typical mission of the sUAS would be photography or survey of persons, vessels, vehicles or structures it would be necessary to operate closer than 500 feet to the items listed. Operations will only be flown over property or persons where permission has been obtained and careful pre-planned flight path has been performed. The aircraft will be operated at a low altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface. Therefore we maintain that due to the small size of the UAS, the hazard to persons, vehicles and structures is minimal compared to manned aircraft, which should be considered in granting the exemption.

CFR 91.121 Altimeter settings.
The regulation requires that aircraft shall maintain cruising altitudes by reference to an altimeter setting available within 100 NM of the aircraft. The sUAS will always fly below 400 feet AGL and will not need to maintain cruising altitudes in order to prevent conflict with other aircraft. An Above Ground Level altimeter measurement above the takeoff point is transmitted via radio from the sUAS on-board computer to the display screen held by the PIC, providing a constantly updated AGL readout.

14 CFR 91.151 Fuel requirements for flight in VFR conditions.
The regulation provides that no person may begin a flight in an airplane under day-vFR conditions unless there is enough fuel to fly to the first point of intended landing and to fly after that for at least 30 minutes. We feel the intention of this paragraph is to provide an energy

reserve as a safety buffer for delays to landing. The sUAV is battery operated and the maximum duration of flight from a single battery charge is 12 minutes with a 20% reserve. Since the aircraft will never fly more than 3/4 NM from the point of intended landing, a full battery charge at launch will ensure that we meet the reserve energy requirement of this paragraph. We request an exemption to the word "fuel" and ask for an equivalent interpretation with the word "energy".

14 CFR 91.203(a) & (b) Civil aircraft: Certifications required.
The regulation provides that an airworthiness certificate, with the registration number assigned to the aircraft and a registration certificate must be aboard the aircraft. Additionally, subparagraph (b) provides that the airworthiness certificate be "displayed at the cabin or cockpit entrance so that it is legible to passengers or crew." At a maximum gross weight of 5.3 pounds, the sUAS is too small to carry documentation, does not have an entrance, and is not capable of carrying passengers or crew. To obtain an equivalent level of safety and meet the intent of 91.203, we propose that documents deemed appropriate for this aircraft by the FAA will be with the crew at the ground control station and available for inspection upon request. In order to identify the aircraft, we propose that the information found on airworthiness and registration certificates be permanently affixed to the aircraft via placard containing the following information plus the word "EXPERIMENTAL" to satisfy the requirement of 14 CFR 45.23.

14 CFR Subpart E (91.401- 91.417)- Maintenance, Preventive Maintenance, Alterations
The regulation provides that the operator is primarily responsible for maintaining the aircraft in an airworthy condition, including compliance with part 39 and 43. Paragraphs 91.407 and 91.409 require that the aircraft be "approved for return to service by a person authorized under 43.7" after maintenance and inspection. It is our intention that the PIC perform maintenance and inspection of the aircraft and "be authorized to approve the aircraft for return to service." The PIC will ensure that the aircraft is in an airworthy condition prior to every flight and in addition conduct detailed inspections after every two hours of flight. Maintenance performed by the PIC is limited to repairing small cracks, replacing a propeller, checking electrical connections and updating software and firmware for the on-board computer. All other maintenance will be performed by the manufacturer or their designated repair facility. The PIC will document work performed in accordance with 91.417. We feel that due to the size, construction, and simplicity of the aircraft, the PIC can ensure an equivalent level of safety.

Safety and Benefits of the UAS
New Heights Aerial Media, LLC will be using the UAS in a variety of applications that generally require expensive full-size manned aircraft to complete. Small, light, unmanned aerial vehicles offer myriad benefits over the use of full-sized manned aircraft for electric power line inspection, oil/gas pipeline inspection, advanced agriculture, film and still photography, just to name a few. Replacing significantly larger manned aircraft carrying crew and flammable fuel with small UAS carrying no passengers or crew creates a much greater margin of safety for the pilots and crew. By granting New Heights Aerial Media, LLC‘s requested exemptions, the FAA will help drive development of safe and successful commercial UAS operations and will advance the public knowledge base for such operations. New Heights Aerial Media, LLC is committed to promoting the UAS research efforts of policymakers including the FAA, NASA, DOD and DARPA by

sharing data from its commercial UAS operations and serving as a resource for future UAS research operations. Thus, the FAA has good cause to grant this Petition.

Conclusion

As pointed out in this application, all the SUAs which our company would use, under authorization by the US DOT-FAA, are small, light-weight devices operated within the line of sight of the Pilot-in-Command (PIC), less than 400 feet above the ground and outside 5 miles from any airport, heliport, seaplane base, spaceport, or other location with aviation activities, unless the air traffic control authorities (ATC) have been notified and have authorized each flight within a radius of this distance.

All our SUAs have proven capability for controlled flight. They are devices offered for general sale on the market around the world and have often been used as Model Aircraft in the USA. We are certain that the studies conducted until now by the FAA, about Section 332, Public Law 112-95, 2014, have already provided you with the assurances on the airworthiness of SUAs such as ours.

For the foregoing reasons, the exemptions requested herein should be granted and New Heights Aerial Media LLC should be permitted to conduct small UAS operations in accordance with its manuals and all other operating parameters deemed necessary and appropriate by the FAA. The submission of this application and its contents is the best demonstration that indeed it is possible to pursue the authorization process so that some SUAs may be used for legitimate commercial activities and under reasonably safe conditions.

Signed
David L. Farley
New Heights Aerial Media