

Petition from

**VAN SAMUEL SMITH**

for an exemption from Part 21; and

§§ 45.23(b); 61.113(a) & (b);

91.7(a); 91.9(b)(2); 91.103(b);

91.109; 91.119; 91.121, 91.151(a);

91.203(a) & (b); 91.405(a); 91.407(a)(1);

91.409(a)(2); and 91.417(a) & (b) of

Title 14, Code of Federal Regulations

**Description of Relief Sought:** The petitioner is seeking an exemption to commercially operate his small ultra light weight UAS for academic community awareness, real estate operations, enhancement of real estate listing videos for homeowners that cannot afford expensive manned aircraft for the same purpose, and to benefit/stimulate attraction to the metro Georgetown area.

**The petitioner supports his request with the following information:**

The petitioner states he plans to operate a UAS, the PHANTOM 2 Vision, which is comprised of an unmanned aircraft (UA or PHANTOM) and a transportable ground station.

The PHANTOM is referred to as a quad-copter with a maximum gross weight of about 3 pounds. It is equipped with four rotors that are driven by electric motors powered by batteries.

The UA has a maximum airspeed of 30 knots. Petitioner plans to use his UA and operate the UA over various areas near Georgetown, Texas to enhance academic community awareness and augment real estate listing videos. Petitioner makes the following representations of operational enhancements which he proposes to abide by to ensure this exemption will provide a level of safety at least equal to existing rules:

- He will only operate in reasonably safe environments that are strictly controlled, are away from power lines, elevated lights, airports and actively populated areas; and
- He will conduct extensive preflight inspections and protocols, during which safety carries primary importance.

The petitioner states that given the size, weight, speed, and limited operating area associated with the aircraft to be utilized by him, an exemption from 14 CFR part 21, Subpart H (Airworthiness Certificates) and § 91.203 (a) and (b) (Certifications required), subject to certain conditions and limitations, is warranted and meets the requirements for an equivalent level of safety under 14 CFR part 11 and Section 333 of P.L. 112-95 (Section 333). Petitioner requests an exemption from § 45.23 Marking of the aircraft because his UA will not have a cabin, cockpit or pilot station on which to mark certain words or phrases. Further, he states that two-inch lettering is difficult to place on such a small aircraft with dimensions smaller than the minimal lettering requirement. Regardless of this, petitioner states that he will mark his UAS in the largest possible lettering by placing the word “Experimental” on its fuselage as required by § 45.29(f) so that he or anyone assisting him as a spotter will see the markings.

The petitioner states that an exemption from §§ 91.405(a), 91.407(a)(1), 91.409(a)(2) and 91.417(a) and (b) Maintenance inspections may be required and should be granted since they only apply to aircraft with an airworthiness certificate. However, the petitioner states as a safety precaution he will perform a preflight inspection of his UAS before each flight as outlined in his operating documents.

#### UAS Pilot in Command (PIC)

The petitioner asserts that under § 61.113 (a) and (b) private pilots are limited to noncommercial operations, however he can achieve an equivalent level of safety as achieved by current regulations because his UAS does not carry any pilots or passengers. Further, he

states that, while helpful, a pilot license will not ensure remote control piloting skills. He further indicates that the risks of operating a UAS are far less than the risk levels inherent in the commercial activities outlined in 14 CFR part 61, et seq., thus he requests an exemption from § 61.113 Private Pilot Privileges and Limitations: Pilot in command.

Regarding UAS operational training, the petitioner states he has flown numerous practice flights in remote areas as a hobbyist simulating flights for future commercial use to gain familiarization with the characteristics of his UAS' performance under different temperature and weather conditions. He further states that he practices computerized simulated flights to maintain adequate skills and response reflex time.

In a supplemental request to the FAA, the petitioner requests consideration of a 120 day temporary airman certificate in accordance with § 63.13, to allow him time to obtain a private pilot certificate or to allow the FAA time to establish minimum UAS airman certification standards.

#### UAS Operating Parameters

The petitioner states that he will abide by the following additional operating conditions under this exemption:

- operate his UAS below 300 feet and within a radius distance of 1000 feet from the controller to both aid in direct line of sight visual observation;
- operate the UAS for 3-7 minutes per flight;
- land his UAS prior to the manufacturer's recommended minimum level of battery power;
- operate his UAS only within visual line of sight (VLOS);
- use the UAS' global positioning system (GPS) flight safety feature whereby it hovers and then slowly lands if communication with the remote control pilot is lost;
- conduct all operations under his own personal and flight safety protocols (including posting a warning sign reading: "Attention Aerial Photography in Progress – Remain

Back 150 feet”) contained in the operating documents and will actively analyze flight data and other sources of information to constantly update and enhance his safety protocols;

- contact respective airports if operations will be within 5 miles to advise them of his estimated flight time, flight duration, elevation of flight and other pertinent information;
- always obtain all necessary permissions prior to operation; and
- have procedures in place to abort flights in the event of safety breaches or potential danger.

Petitioner states that § 91.7(a) prohibits the operation of an aircraft without an airworthiness certificate. The petitioner asserts that since there is currently no certificate applicable to his operation, this regulation is inapplicable.

Petitioner states that § 91.9(b)(2) requires an aircraft flight manual in the aircraft, however since there are no pilots or passengers on board his aircraft and given its size, this regulation is inapplicable. He further indicates an equivalent level of safety will be achieved by maintaining a safety/flight manual with the UAS ground station.

Although petitioner requests an exemption from § 91.103(b) Preflight action, he provides no information supporting his request.

Similarly, the petitioner requests an exemption from § 91.109 Flight instruction; simulated instrument flight and certain flight test, and provides no information indicating how safety will be maintained if an exemption to this section is granted.

Petitioner states that § 91.119 prescribes safe altitudes for the operation of civil aircraft, but that it allows helicopters to be operated at lower altitudes in certain conditions. Petitioner states he will not operate his UAS above the altitude of 300 feet above ground level (AGL)

and will also only operate in safe areas away from the public and traffic, thus “providing a level of safety at least equivalent to or below those in relation to minimum safe altitudes.”

The petitioner asserts that given the size, weight, maneuverability, and speed of his UAS, an equivalent or higher level of safety will be achieved.

Petitioner indicates that § 91.121 Altimeter settings is inapplicable since he UAS utilizes electronic GPS with a barometric sensor.

While petitioner requests an exemption from § 91.151(a) Fuel requirements for flight in VFR conditions, he provides no information supporting his request for this exemption.

#### Public Interest

The petitioner states that aerial videography for geographical awareness and for real estate marketing has been around for a long time through manned fixed wing aircraft and helicopters, but for small business owners, its expense has been cost-prohibitive. Granting this exemption to the petitioner would allow him to provide this service at a much lower cost. Further, the petitioner indicates his small UAS will pose no threat to the public given its small size and lack of combustible fuel when compared to larger manned aircraft. The petitioner also states that the operation of his UAS will minimize ecological damage and promote economic growth by providing information to companies looking to relocate or build in the Georgetown metro area.

By letter dated January 7, 2015, Mr. Van Smith, of Come And Take It Photography (Smith), 303 Wagon Wheel Trail, Georgetown, TX 78628 is petitioning the Federal Aviation Administration (FAA) for an exemption from part 21, subpart H; and Sections 45.23(b), 61.113(a) and (b), 91.7(a), 91.9(b)(2), 91.103(b), 91.109, 91.119, 91.121, 91.151(a), 91.203(a) and (b), 91.405(a), 91.407(a)(1), 91.409(a)(2), and 91.417(a) and (b) of Title 14, Code of

Federal Regulations (14 CFR). The proposed exemption would allow Smith to operate the PHANTOM 2 Vision quad-copter unmanned aircraft system (UAS) to conduct aerial videography and cinematography to enhance academic community awareness for those individuals and companies unfamiliar with the geographical layout of the metro Georgetown area and augment real estate listing videos.

The petitioner requests relief from the following regulations:

Part 21 prescribes the procedural requirements for issuing and changing design approvals, productions approvals, airworthiness certificates, and airworthiness approvals. 2

Section 45.23(b) prescribes that when marks include only the Roman capital letter “N” and the registration number is displayed on limited, restricted or light-sport category aircraft or experimental or provisionally certificated aircraft, the operator must also display on that aircraft near each entrance to the cabin, cockpit, or pilot station, in letters not less than 2 inches nor more than 6 inches high, the words “limited,” “restricted,” “light-sport,” “experimental,” or “provisional,” as applicable.

Section 61.113(a) and (b) prescribes that—

(a) no person who holds a private pilot certificate may act as a pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as pilot in command of an aircraft.

(b) a private pilot may, for compensation or hire, 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.

Section 91.7(a) prescribes that no person may operate a civil aircraft unless it is in an

airworthy condition.

Section 91.7(b) prescribes that the pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight and that the PIC shall discontinue the flight when unairworthy mechanical, electrical, or structural conditions occur.

Section 91.9(b)(2) prohibits operation of U.S.-registered civil aircraft unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.

Section 91.103(b) prescribes that a pilot shall for any flight, become familiar with runway lengths at airports of intended use, and takeoff and landing distance information.

Section 91.109(a) prescribes, in pertinent part, that no person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls.

Section 91.119 prescribes that, except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:<sup>3</sup>

(a) Anywhere. An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

(b) Over congested areas. Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.

(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.

(d) Helicopters, powered parachutes, and weight-shift-control aircraft. If the operation is conducted without hazard to persons or property on the surface—

(1) A helicopter may be operated at less than the minimums prescribed in paragraph

(b) or (c) of this section, provided each person operating the helicopter complies with any routes or altitudes specifically prescribed for helicopters by the FAA; and

(2) A powered parachute or weight-shift-control aircraft may be operated at less than the minimums prescribed in paragraph (c) of this section.

Section 91.121 requires, in pertinent part, 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."

Section 91.151(a) prescribes that no person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed, (1) during the day, to fly after that for at least 30 minutes [emphasis added].

Section 91.203(a) prohibits, in pertinent part, any person from operating a civil aircraft unless it has within it (1) an appropriate and current airworthiness certificate; and (2) an effective U.S. registration certificate issued to its owner or, for operation within the United States, the second copy of the Aircraft registration Application as provided for in § 47.31(c).

Section 91.203(b) prescribes, in pertinent part, that no person may operate a civil aircraft unless the airworthiness certificate or a special flight authorization issued under § 91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

Section 91.405(a) requires, in pertinent part, that an aircraft operator or owner shall have that aircraft inspected as prescribed in subpart E of the same part and shall, between required inspections, except as provided in paragraph (c) of the same section, have discrepancies repaired as prescribed in part 43 of the chapter.

Section 91.407(a)(1) prohibits, in pertinent part, any person from operating an aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless it has been approved for return to service by a person authorized under § 43.7 of the same chapter.

Section 91.409(a)(2) prescribes, in pertinent part, that no person may operate an aircraft unless, within the preceding 12 calendar months, it has had an inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

Section 91.417(a) and (b) prescribes, in pertinent part, that—

(a) Each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:

(1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include—

- (i) A description (or reference to data acceptable to the Administrator) of the work performed; and
- (ii) The date of completion of the work performed; and
- (iii) The signature, and certificate number of the person approving the aircraft for return to service.

(2) Records containing the following information:

- (i) The total time in service of the airframe, each engine, each propeller, and each rotor.
- (ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.
- (iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.
- (iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under

which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revision date. If the AD or safety directive involves recurring action, the time and date when the next action is required.

(vi) Copies of the forms prescribed by § 43.9(d) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

(b) The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator under § 43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service.