

Aerius, LLC  
11742 Cedarbrook Dr.  
South Lyon, MI 48178  
T: +1 248 667 8577  
Kbeason@aeriusflight.com

October 27, 2014

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

Re: Request for Exemption Per PL 112-95 §333 from 14 CFR 61.113(a) and (b),  
14 CFR 91.103, 14 CFR 91.109, 14 CFR 91.119, 14 CFR 91.121, 14 CFR  
91.151(a), 14 CFR 91.405(a), 14 CFR 91.407(a)(1), 14 CFR 91.409(a)(2), 14  
CFR 91.417(a) and (b)

Dear Sir or Madam:

Please consider this a request for an exemption of the above applicable sections of title 14 CFR for Aerius Flight, LLC for the purpose of conducting commercial aerial survey and photography operations with its small Unmanned Aircraft System (sUAS) within controlled access airspace, using licensed airmen, and employing a comprehensive safety, training, and planning program. The employment of sUAS platforms for these missions should provide the FAA with good cause to find that these operations enhance safety by eliminating the need to use conventional aircraft in the sometimes unique environments where an sUAS would be particularly adept, but a conventional aircraft may pose a hazard to its crew and those on the ground.

Aerius, LLC requests exemption from the following applicable regulations, pursuant to the Administrator's authority to grant exemptions contained in 49 U.S.C. § 106(f), 40113, and 44701:

14 CFR 21 Part H  
14 CFR 61.113(a) and (b),  
14 CFR 91.103,  
14 CFR 91.109,  
14 CFR 91.119,  
14 CFR 91.121,

14 CFR 91.151(a),  
14 CFR 91.405(a),  
14 CFR 91.407(a)(1),  
14 CFR 91.409(a)(2),  
14 CFR 91.417(a) and (b)

#### OPERATION OVERVIEW

Our current staff are professionally trained airmen with commercial and ATP privileges, hold Bachelors of Science degrees in aviation, and have thousands of hours experience with the regulations and operations of the National Airspace System, ensuring an equivalent, if not greater level of safety.

Our operations utilize sUAS in a manner that provides services not offered by manned aircraft or enhances the level of safety at which the tasks can be completed in manned aircraft

Examples of the proposed aerial photography operations include both real estate and insurance damage assessment. Both operations restrict the use of the sUAS to a small area typically encompassing a limited number of residential and commercial properties at a time. The areas in which the flight takes place can readily be protected with secured access by the staff of Aerius, comparable to that of a movie production set. The structures on these properties provided sufficient protection from the sUAS and can be completed with much less risk than what would be assumed in a manned operation at low altitudes.

Our intended film production operation would typically include both photography and videography for sundry commercial purposes including wedding and corporate events as well as promotional video and commercial production for businesses. These events are restricted to only the invited participants and are closed to the general public, providing the opportunity to operate only in an area where informed, consenting participants and personnel are present. By adhering to the restrictions and exemptions previously established to movie production entities Aerius, LLC will be able to provide a level of safety equal to or greater than the manned aircraft that would typically provide these services.

Finally, our survey operation includes the orthomosaic mapping of both agriculture and construction sites utilizing our sUAS rotorcraft flying pre-programmed grids that can be interrupted and returned to a safe landing zone by our FAA certified pilots at any time. Currently these operations are executed by general aviation aircraft carrying hundreds of pounds of fuel and equipment flying at low altitudes and speeds. Our operation would greatly increase the level of safety, replacing large aircraft with an sUAS under 35 pounds and restricted to speeds no greater than 50

knots. These sites are areas that can readily be secured by Aerius personnel and would not provide any additional risk to the general public.

All of Aerius Flight, LLC operations will be performed by FAA licensed pilots with trained Visual Observers and, where necessary, Site Security Coordinators, in controlled and secured environments only after a safety assessment has been completed and approved risk mitigation practices to a level equivalent to or less than the previous granted exemptions to the motion picture industry.

Any operations under the exemption would be conducted in accordance with the strict parameters specified in the confidential Flight Operations Manual<sup>1</sup>, confidential Pilot Operating Handbooks<sup>1</sup>, and herein.

#### AIRCRAFT

Aerius, LLC will operate variations of the four-rotor Walkera Scout X4 and six rotor DJI s900 sUAS which are commercially available off-the-shelf sUAS. The sUAS are rotorcopter configuration and will weigh no more than 35 pounds. They will operate no faster than 50 knots groundspeed. The aircraft are agile, having the ability to hover, and move about its three axes simultaneously. The aircraft will be operated below 400 feet Above Ground Level (AGL) and continuously within the Pilot in Command's (PIC) line of sight, so as to not create a hazard to users of the national airspace system or public. The aircraft are equipped with failsafe protocols that return the aircraft to a predetermined point and land if any abnormalities are present. Because of the sUAS' specifications and flight characteristics, it poses no threat to national security.

These limitations and conditions that Aerius Flight, LLC agrees to be bound to include:

1. The sUAS will weigh less than 35 lbs.
2. Flights will be operated within line of sight of a pilot and/or observer.
3. Maximum total 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.
4. Flights will be operated at an altitude of no more than 400 feet AGL.

---

<sup>1</sup> Aerius Flight, LLC submits these manuals as a Confidential document under 14 CFR 11.35 (b) as the entire manual contains proprietary information that the applicant has not and will not share with others. The manual contains operating conditions and procedures that are not available to the public and are protected from release under the Freedom of Information Act 5 USC 552 et.seq.

5. Minimum crew for each operation will consist of the sUAS Pilot, the Visual Observer and based on results of the safety assessment may include a security coordinator
6. sUAS pilot will be an FAA licensed airman with at least a private pilot's certificate and third class medical. The observer will hold at least a third class medical.
7. The UAS will only operate within a confined "Sterile Area" as defined in the Manual. Section 3.5 and 6.3 of the FOM requires the establishment of a "Security Perimeter" for the flight operations area.
8. A briefing will be conducted in regard to the planned sUAS operations prior to each day's production activities. It will be mandatory that all personnel who will be performing duties within the boundaries of the safety perimeter be present for this briefing.
9. 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.
10. The operator will obtain the consent of all persons involved in the filming and ensure that only consenting persons will be allowed within 30 feet of the flight operation. This radius may be reduced further based upon an equivalent level of safety determination with the advanced permission of the relevant FSDO.
11. The operator will submit a written Plan of Activities to the FSDO three days before the proposed shoot as required in Section 3.3 of the FOM.
12. Pilot and observer will have been trained in operation of UAS generally and received up-to-date information on the particular UAS to be operated as required Section 4 of the Flight Operations Manual.
13. Observer and pilot will at all times be able to communicate by voice
14. Written and/or oral permission from the relevant property holders will be obtained.
15. 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.
16. If the sUAS loses communications or loses its GPS signal, the UAS will have capability to return to a pre-determined location within the Security Perimeter and land.
17. The sUAS will have the capability to abort a flight in case of unpredicted obstacles or emergencies.

#### sUAS CONTROL

The control of the sUAS will be through a Radio Transmitter and Receiver manufactured by Frsky Electronics Co., LTD operating on the 2.4ghz Spektrum. The Frsky Control System is FCC approved and provides range of greater than

1.5km. The Control Link system also provided telemetry status of the link strength and critical flight information on its built in display.

#### sUAS PAYLOAD

Our Multi-Rotor sUAS are designed to carry a multitude of camera systems to meet the demands of our clients. Any change from a known configuration will result in a notation in the aircraft log from a company approved technician and in accordance with Aerius Flight, LLC's Flight operations manual Section 5.6. Prior to resuming commercial operations the sUAS will be flight tested in accordance with our maintenance procedures outlined in our FOM.

#### AIRWORTHINESS CERTIFICATION

The sUAS to be operated by Aerius Flight, LLC weight less than 35 lbs. fully loaded, carries neither a pilot nor passenger, carries no explosive materials or flammable liquid fuels, and operates exclusively within a secured area as set out in the FOM. Unlike other civil aircraft, operations under this exemption will be tightly controlled and monitored by the operator, pursuant to the FOM's requirements and will provide a greater degree of safety to the public and property owners than conventional operations conducted with airworthiness certificates issued under 14 C.F.R. Part 21, Subpart H. Lastly, application of these same criteria demonstrates that there is no credible threat to national security posed by the UAS, due to its size, speed of operation, location of operation, lack of explosive materials or flammable liquid fuels, and inability to carry a substantial external load.

#### FLIGHT CREW

Flight Crew (14 CFR 61.113 (a) and (b)) "Flights are planned and coordinated in accordance with manual." Prior to flight, the PIC and Visual Observer (VO) ("flight crew") will have completed the qualification process as outlined in the operator's manual. The Pilot in Command will possess, at minimum, a private pilot's certificate, meet applicable recent flight experience requirements and hold at least a third class medical. The Visual Observer will be trained in accordance with the company's FOM and will undergo routine competency checks.

#### PREFLIGHT ACTION

In accordance with 14 CFR 91.103, the PIC will, at minimum, receive a weather briefing, survey the launch and recovery environments and review takeoff and landing distances and other applicable aircraft performance data, check the aircraft and ground station/transmitter battery levels, and brief the Visual Observer (VO) and any other supporting crew on the mission, safety, and contingencies. All flights will be conducted in Day VMC conditions. Minimum flight crew shall include the PIC, Visual Observer to assist with seeing-and-avoiding other aircraft, a Site Security Coordinator as determined by preflight risk analysis.

## FLIGHT INSTRUCTION

Flight Instruction (14 CFR 91.109), No pilot or passengers will be carried aboard.

## MINIMUM SAFE ALTITUDES

Aerius, LLC requests authority to operate at altitudes up to but not exceeding 400 feet AGL within a specifically defined, controlled, restricted perimeter per 14 CFR 91.119. Aerius, LLC will establish and maintain a security perimeter for the purpose of protecting structures and people not associated with the operation. In establishing the security perimeter, Aerius, LLC will receive the permission of the owner of the property upon which the ground crew will stage and above which the aircraft will operate, and at no time will the sUAS be operated directly over a person. Should the flight take place over public lands, Aerius LLC will obtain the permission of the governing body of jurisdiction. Obtaining permission to operate will serve as notification to the property owner or governing body that operations will be taking place. The sUAS will be continuously operated at an altitude which will allow a safe descent and recovery should a mechanical issue arise.

## ALTIMETER SETTING

The sUAS does not have a barometric altimeter but does have a GPS altimeter. In meeting 14 CFR 91.121, an equivalent level of safety provided is by preflight action where the PIC will compare the GPS altimeter with the MSL altitude of the safe operating perimeter as ascertained by applicable aeronautical and topographical charts and make an calibration as necessary.

## FUEL REQUIREMENTS

Aerius, LLC seeks exemption from 14 CFR 91.151(a). The sUAS is powered by a battery, which provides unto 30 minutes of powered flight. Because of the absence of flammable operating fluids, an sUAS would not pose the same level of risk as a conventional aircraft. All participants in safe operating perimeter have been informed and educated, and have indicated consent. All Aerius, LLC PICs will terminate flights when remaining battery power level reaches 25%.

## sUAS MAINTENANCE

Aerius, LLC requests exemption from 14 CFR 91.405(a), 14 CFR 91.407(a)(1), 14 CFR 91.409(a)(2), 14 CFR 91.417(a) and (b). The sUAS does not have an airworthiness certificate. Aerius, LLC will conduct all maintenance on the sUAS in accordance with the flight operations manual and pilot operating handbook. All maintenance will be conducted by a trained Aerius, LLC associate. Because of relatively small operating perimeter, any mechanical issues that may arise during flight could be quickly mitigated by terminating the flight.

## Privacy

Because the purpose of operation is commercial, the consent to operate on a property or establishment of a contract would imply consent from the owner or authority with jurisdiction. Film or photos would only be taken of people who consent.

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 Aerius Flight, LLCs requested exemption, allowing for Aerius Flight, LLC's UAS commercial operations for the purpose of photography, film and survey pursuant to the FOM and POHs included herewith.

Confidential Manuals are available on request.

Sincerely,

A handwritten signature in black ink that reads "Kenneth R. Beason". The signature is written in a cursive, slightly slanted style.

Kenneth R Beason  
CEO, Director of Flight Operations  
Aerius Flight, LLC