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

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

August 24, 2015

Exemption No. 12580
Regulatory Docket No. FAA−2015−2366

Mr. Reed Frick
CEO
Griffin Aerial, LLC
182 West Rock Avenue
New Haven, CT 06515

Dear Mr. Frick:

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 May 29, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Griffin Aerial, LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial surveying, remote sensing, telecommunications, agriculture, aerial filmmaking and photography, energy systems inspections and asset management, construction site inspections and monitoring, wildlife and forestry monitoring, educational and research operations, pipeline inspection and patrolling.

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 are the DJI S900, DJI S1000, 3D Robotics Iris +, 3D Robotics X8-M, 3D Robotics Aero-M, and 3D Robotics Solo.

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 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[1]. 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, Griffin Aerial, LLC 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.

[1] Aerial data collection includes any remote sensing and measuring by an instrument(s) aboard the UA. Examples include imagery (photography, video, infrared, etc.), electronic measurement (precision surveying, RF analysis, etc.), chemical measurement (particulate measurement, etc.), or any other gathering of data by instruments aboard the UA.

Conditions and Limitations

In this grant of exemption, Griffin Aerial, LLC 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 S900, DJI S1000, 3D Robotics Iris +, 3D Robotics X8-M, 3D Robotics Aero-M, and 3D Robotics Solo 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 five 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 August 31, 2017, unless sooner superseded or rescinded.

Sincerely,

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

Enclosures

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

May 29, 2015

Griffin Aerial, LLC

Section 333 Petition to Operate Small Unmanned Aerial Systems

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Petition Summary:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95 (2012), 126 Stat. 11 ("Section 333") and the Federal Aviation Administration's ("FAA") general exemption authority under 49 U.S.C. section 44701(f), Griffin Aerial, LLC ("Petitioner") hereby petitions for exemptions from 14 C.F.R Part 21, Subpart H (Airworthiness Certificates), 14 C.F.R. Part 27 (Airworthiness Standards: Normal Category Rotorcraft), 14 C.F.R sections 61.113(a)-(b), 91.103(b)(1), 91.119(c), 91.121, 91.151, 91.405(a), 91.407(a)(1), 91.409(a)(2), and 91.417(a)-(b).

The proposed exemption, if granted, would allow Petitioner 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.

Petitioner is an aerial service and technology company that plans to exploit the capabilities of Unmanned Aerial Systems to offer a multitude of services, including:

- Aerial surveying
- Remote sensing
- Telecommunications
- Agriculture
- Aerial filmmaking and photography
- Energy systems inspections and asset management
- Construction site inspections and monitoring
- Wildlife and forestry monitoring
- Educational and research operations
- Pipeline inspection and patrolling

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:
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 91.103 prescribes, in pertinent part, that each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight, to include—
(a) For a flight under IFR or a flight not in the vicinity of an airport, weather reports and forecasts, fuel requirements, alternatives available if the planned flight cannot be completed, and any known traffic delays of which the pilot in command has been advised by ATC;
(b) For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information:
(1) For civil aircraft for which an approved Airplane or Rotorcraft Flight Manual containing takeoff and landing distance data is required, the takeoff and landing distance data contained therein;
(2) For civil aircraft other than those specified in paragraph (b)(1) of this section, other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.

Section 91.119 prescribes that, except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:
(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; or (2) At night, to fly after that for at least 45 minutes. [emphasis added]

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.

The Petitioner has supplied the Following Additional Information:

DJI S900 Pilot Operating Handbook (POH) and S900 User Manual (linked as file is too large to submit online): http://www.dji.com/product/spreading-wings-s900/download
DJI S1000 Pilot Operating Handbook (POH) and S1000 User Manual
3D Robotics Iris + Operation Manual and Flight Checklist
3D Robotics X8-M Operation Manual and Flight Checklist
3D Robotics Aero-M Operation Manual found here (linked as file is too large to submit online): http://3drobotics.com/wp-content/uploads/2015/04/AeroM-Operation-Manual-v3.pdf

Unmanned Aircraft Systems requested to operate under this request:

DJI S900
DJI S1000
3D Robotics Iris +
3D Robotics X8-M
3D Robotics Aero-M

The petitioner states that the unmanned aircraft (UA) to be operated under this request are less than 55 lbs. fully loaded, fly at a speed of no more than 50 knots, carry neither a pilot nor passenger, carry no explosive materials or flammable liquid fuels, and operate exclusively within a secured area as set out in the POHs.

The S900 is a six-rotor manufactured by DJI. The VTOL hexarotor-type design has six motors, GPS, full autonomous autopilot capabilities, telemetry and manual ground control. In addition, the craft has integrated safety features built into the design of the UAS, as described in the POH, to ensure the safety of persons and property within and surrounding the limited operating area. The petitioner further describes that, in the event the UAS loses communications or its GPS signal, the UA will have the capability to return to a pre-determined location within the Security Perimeter and land. It will also have the capability to abort a flight in the event of unpredicted obstacles or emergencies.

The S1000 is an eight-rotor manufactured by DJI. The VTOL octarotor-type design has eight motors, GPS, full autonomous autopilot capabilities, telemetry and manual ground control. In addition, the craft has integrated safety features built into the design of the UAS, as described in the POH, to ensure the safety of persons and property within and surrounding the limited operating area. The petitioner further describes that, in the event the UAS loses communications or its GPS signal, the UA will have the capability to return to a pre-determined location within the Security Perimeter and land. It will also have the capability to abort a flight in the event of unpredicted obstacles or emergencies.

The Iris + is a four-rotor manufactured by 3D Robotics. The VTOL quadrotor-type design has four motors, GPS, full autonomous autopilot capabilities, telemetry and manual ground control. In addition, the craft has integrated safety features built into the design of the UAS, as described in the POH, to ensure the safety of persons and property within and surrounding the limited operating area. The petitioner further describes that, in the event the UAS loses communications or its GPS signal, the UA will have the capability to return to a pre-determined location within the Security Perimeter and land. It will also have the capability to abort a flight in the event of unpredicted obstacles or emergencies.

The X8-M is a four-rotor manufactured by 3D Robotics. The VTOL quadrotor-type design has eight motors, GPS, full autonomous autopilot capabilities, telemetry and manual ground control. In addition, the craft has integrated safety features built into the design of the UAS, as described in the POH, to ensure the safety of persons and property within and surrounding the limited operating area. The petitioner further describes that, in the event the UAS loses communications or its GPS signal, the UA will have the capability to return to a pre-determined location within the Security Perimeter and land. It will also have the capability to abort a flight in the event of

unpredicted obstacles or emergencies.

The Aero-M is a single motor fixed wing manufactured by 3D Robotics. The fixed wing has one motor, GPS, full autonomous autopilot capabilities, telemetry and manual ground control. In addition, the craft has integrated safety features built into the design of the UAS, as described in the POH, to ensure the safety of persons and property within and surrounding the limited operating area. The petitioner further describes that, in the event the UAS loses communications or its GPS signal, the UA will have the capability to return to a pre-determined location within the Security Perimeter and land. It will also have the capability to abort a flight in the event of unpredicted obstacles or emergencies.

Petitioner's UAS will be identified by serial number, registered in accordance with 14 C.F.R. Part 47, and have identification (N-Number) markings in accordance with 14 C.F.R. Part 45, Subpart C. Markings will be as large as practicable.

Pre-flight Inspection, Maintenance
Before each flight the PIC will perform a series of pre-flight and takeoff checks as defined by the POH supplied. After each 60 minutes of airtime, the craft will undergo a thorough inspection of all aircraft components, including, but not limited to:
a. Actuators / Servos
b. Motors, wiring and connectors
c. Propellers, smooth, no chips
d. Electronic speed controller, wiring and connectors
e. Batteries, wiring and connectors
f. Remote command and control
g. Ground control station

UAS Operating Parameters
The petitioner states that all flights will be operated within visual line of sight (VLOS) of pilot, in daytime VFR flight conditions and all operations will be conducted with the assistance of a second spotter/observer. The UAS flights will be limited to a maximum altitude of 400 feet AGL. Altitude is accurately measured by GPS. The petitioner further states that an operator will ensure that only consenting production personnel will be allowed within 100 feet of the UA operation, and UAS will be kept at least 100' from any inhabited structure. Generally the petitioner's UAS will be operated in rural or suburban areas that will permit significantly larger safety zones.

Flight Standards District Offices (FSDOs) will be notified as required prior to operations to describe intended coordination for proposed operation(s). Petitioner will obtain an Air Traffic Organization ("ATO") issued Certificate of Waiver or Authorization ("COA") prior to conducting any operations under this grant of exemption. In fulfilling its requirements under the COA, Petitioner will be required to request a NOTAM not more than 72 hours in advance, but not less than 48 hours prior to the operation.

Petitioner's UAS will remain clear and yield the right of way to all manned operations and activities at all times (including, but not limited to, ultralight vehicles, parachute activities, parasailing activities, and hangliders). Petitioner will not conduct UAS operations within 5 nautical miles of the geographic center of a non-towered airport unless a letter of agreement with that airport's management is obtained and the operation is conducted in accordance with a Notice to Airmen ("NOTAM").

Pilot in Command (PIC)
The pilot in command will be Griffin Aerial's CEO, Reed Frick. Mr. Frick received his airman's Private Certificate in 2007, number 3239456, and has logged over 70 hours in single engine aircraft. He is a holder of a valid driver's license, CT License number 058791058, Expiring 05/19/2017. In addition to PIC experience in manned aircraft, Mr. Frick has approximately 12 years of experience with R/C fixed wing and rotor wing aircraft.

Regarding Petitioner's requested relief from 14 C.F.R. § 91.103(b)(1), Petitioner will comply with the other applicable procedures and requirements stated in § 91.103(a) and (b). Specifically, the PIC will take all actions including reviewing weather, flight battery requirements, aircraft performance data, and landing and takeoff distances before initiation of a flight. The PIC will also account for all relevant site-specific conditions in their preflight procedures. Risks presented by sun glare will be mitigated by the PIC's and VO's ability to see other air traffic and initiate a return-to-home sequence if needed.

Radio Frequencies
Radio frequencies used will be those allotted by the FCC for data transmission and vehicle control in unlicensed frequency bands. All devices used will comply with FCC usage and emissions regulations.

Safety and Benefits of the UAS
The petitioner 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 a myriad of 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 Petitioner'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. Petitioner 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
For the foregoing reasons, the exemptions requested herein should be granted and Petitioner 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.