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

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

May 21, 2015

Exemption No. 11645
Regulatory Docket No. FAA–2015–0699

Messrs. Eric Mills and Frederick Remington
Managing Partners
Aileron LLC, dba Skyform
3333 East Bayaud Avenue, #916
Denver, CO 80209

Dear Messrs. Mills and Remington:

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

By letter dated March 16, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Aileron LLC, dba Skyform (hereinafter petitioner or operator) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct aerial imagery and filming in the motion picture, video, photography, and television industries.

See Appendix A for the petition submitted to the FAA describing the proposed operations and the regulations that the petitioner seeks an exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

Airworthiness Certification

The UAS proposed by the petitioner is a DJI S900.

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection and closed set motion picture and filming. 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, Aileron LLC, dba Skyform 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 and closed set motion picture and filming. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, Aileron LLC, dba Skyform 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 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 permitted.

3. The UA may not be operated at a speed exceeding 87 knots (100 miles per hour). The exemption holder may use either groundspeed or calibrated airspeed to determine compliance with the 87 knot speed restriction. In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.

4. The UA must be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

5. The UA must be operated within visual line of sight (VLOS) of the PIC at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate or U.S. driver's license.

6. All operations must utilize a visual observer (VO). The UA must be operated within the visual line of sight (VLOS) of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times; electronic messaging or texting is not permitted during flight operations. The PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight. The PIC must ensure that the VO can perform the duties required of the VO.

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations herein take precedence and must be followed.

Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS−80) may be contacted if questions arise regarding updates or revisions to the operating documents.

8. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g., replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a PIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.

9. The operator is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, e.g., inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.

11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

12. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.

13. Under this grant of exemption, a PIC must hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC must also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal Government. The PIC must also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be

operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. However, training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

15. UAS operations may not be conducted during night, as defined in 14 CFR § 1.1. All operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.

16. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.

17. The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

18. If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property.

19. The PIC must abort the flight in the event of unpredicted obstacles or emergencies.

20. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least 5 minutes or with the reserve power recommended by the manufacturer if greater.

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

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification

(N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

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

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

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

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

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

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

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

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

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

30. At least 3 days before aerial filming, the operator of the UAS affected by this exemption must submit a written Plan of Activities to the local Flight Standards District Office (FSDO) with jurisdiction over the area of proposed filming. The 3-day notification may be waived with the concurrence of the FSDO. The plan of activities must include at least the following:
    a. Dates and times for all flights;
    b. Name and phone number of the operator for the UAS aerial filming conducted under this grant of exemption;
    c. Name and phone number of the person responsible for the on-scene operation of the UAS;
    d. Make, model, and serial or N−Number of UAS to be used;
    e. Name and certificate number of UAS PICs involved in the aerial filming;
    f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the filming production event; the list of those who gave permission must be made available to the inspector upon request;
    g. Signature of exemption holder or representative; and
    h. A description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which filming will be conducted and the altitudes essential to accomplish the operation.

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

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

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

Sincerely,

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

By letter dated March 16, 2015, Mr. Eric Mills and Frederick Remington, Managing Partners, Aileron LLC, dba Skyform, 3333 E.Bayaud Ave. #916, Denver, Colorado 80209, hereby ask the Federal Aviation Administration (FAA) for an exemption from part 21 subpart H (§§ 21.171– 21.199) and §§ 45.23(b), 91.7(a), 91.9(b), 91.103, 91.109, 91.119, 91.121, 91.151(a), 91.203(a) and (b), and Subpart E (91.401–91.417) of Title 14, Code of Federal Regulations (14 CFR). The exemption would allow Aileron, LLC, dba Skyform, to operate the DJI S900 Unmanned Aircraft System (UAS) (hereinafter referred to as the S900) for the purpose of aerial filming in the motion picture, video, photography, and television industries as well as providing high-resolution aerial imagery for agricultural, construction and petroleum industries.

Skyform requests relief from the following regulations:

Part 21, subpart H (§§ 21.171-21.199), prescribes in pertinent part, the procedural requirements for issuing and changing design approvals, production approvals, airworthiness certificates, and airworthiness approvals.

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

Section 91.9(b) prescribes, in pertinent part, that no person may operate a 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 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; and

(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 91.109 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:

(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 prescribes, in pertinent part, that each person operating an aircraft shall maintain the cruising altitude by reference to an altimeter that is set when operating below 18,000 feet mean sea level (MSL) 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 visual flight rules (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) prescribes, in pertinent part, that no person may operate 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.

Part 91, Subpart E (§§ 91.401-91.417), prescribes, in pertinent part, rules governing the maintenance, preventive maintenance, and alterations of U.S.-registered civil aircraft operating within or outside of the United States.

Skyform supports its request with the following information:

1) Skyform Standard Operating Procedures Manual (SOPM)
2) S900 flight planning document
3) S900 user manual

Unmanned Aircraft System (UAS)

Skyform plans to operate a UAS, the DJI S900, which is manufactured by DJI Technologies, Hong Kong, China, and includes a lightweight battery-powered/operated aircraft, ground control station, and associated data link equipment. The S900 airframe is constructed of carbon fiber and weighs 4.7 lbs., with a wingspan of 50 inches. The S900 is powered by one lithium polymer battery that drives a total of twelve propellers. It is ground launched, has a maximum flight time of 18 minutes, and operates at a cruising speed of up to 30 mph. The ground control station consists of 2 Spektrum DX-9 remotes and a DJI Lightbridge which has a maximum data link range of 3 nautical miles (NM). If the S900 loses link with the ground control station or detects a low battery state at any time it will initiate a return-to-home sequence.

Regarding airworthiness certification, Skyform requests an exemption from part 21, subpart H, Airworthiness Certificates, (§§ 21.171-21.199). The operator states that an equal level of safety will be achieved with the operational limitations described in the petition. Specifically, all flights will occur within visual line of sight (VLOS) of the PIC and visual observer (VO), at an altitude of 400 feet above ground level (AGL) or less. As a result of the operating limits proposed, combined with the S900's lightweight airframe and very high pilot requirements, Skyform states that the S900 can safely operate without creating a hazard to other aircraft or to persons or structures on the ground.

Regarding aircraft markings, we request an exemption from § 45.23(b) because the S900 is unmanned and therefore does not have an entrance on which the required markings could be displayed. Skyform proposes to achieve an equivalent level of safety by including the word "EXPERIMENTAL" in the largest lettering possible on the top of the aircraft. Because the S900 would always be within VLOS of the PIC (positioned at the ground station) and would be flown at 400 feet AGL or lower, the markings on the airframe and the flag at the ground station would allow parties to be visually informed of the UAS's operating status.

Regarding civil aircraft certification required under § 91.7(a), Skyform notes that it is already seeking exemption from airworthiness certification and, thus, that no FAA standard will exist for determining airworthiness. We will achieve an equal level of safety by following the pre-flight protocol for each flight, safety checks, and comprehensive maintenance procedures prescribed in the operating documents.

Regarding keeping an approved civil aircraft flight manual aboard the UAS, Skyform states it may need an exemption from § 91.9(b), because the aircraft is too small to carry documentation and that documentation would not be available to the crew. We will obtain an equivalent level of safety by mandating that current operating documents be available to the crew at the ground station anytime the aircraft is in flight or preparing for flight.

Regarding the requirements in § 91.109 for fully functioning dual flight controls aboard the aircraft, Skyform notes the S900 ground control station is computer-based; while it does not offer a second set of "controls," both the student and instructor can and will operate the single set of controls, which could be passed back and forth between the student and instructor.

Regarding the requirement in § 91.203 that all civil aircraft have "an appropriate and current airworthiness certificate" that must be "displayed at the cabin or cockpit entrance so that it is legible to passengers or crew[,]" Skyform is already seeking an exemption from airworthiness certification requirements and therefore requires an exemption from this regulation as well. Moreover, due to its size and design, the S900 has no cabin or cockpit and therefore no ability to affix or carry certificate or registration documents. An equivalent level of safety can be attained by keeping any FAA-required documents at the ground control station and by affixing a small placard to the S900 airframe with manufacture, registration, and contact information.

We request an exemption from the maintenance, preventive maintenance, and alterations requirements in part 91, Subpart E (§§ 91.401 through 91.417). Skyform proposes that the PIC perform maintenance and inspection of the aircraft according to the operating documents, which are supplemental, proprietary operations and maintenance procedures submitted to the FAA under separate cover to its petition. Skyform proposes that the PIC will ensure that the aircraft is in an airworthy condition prior to flight and approve its return to service. Additional maintenance will be performed by the manufacturer or fully certified repair stations. Alll maintenance performed on the S900 by the PIC and manufacturer is documented in accordance with 91.407 (a) (1)." Further, Skyform states, the records will include 'a description of the work performed;

and the date of completion of the work performed; and the signature of the person approving the aircraft for return to service. The PIC will authorize the S900 for return to service for all maintenance covered in the S900 Operations Manual and Maintenance Manual and the manufacturer will authorize the S900 for return to service for all maintenance that is outside the scope of these two documents.

UAS Pilot in Command (PIC)

Skyform will operate over designated areas with both a PIC, and a ground-based Safety Observer. The Safety Observer will be located next to the PIC and will ensure the aircraft remains within VLOS of the PIC and Safety Observer. All S900 operations will be conducted by Airline Transport Pilot (ATP) certified pilots, holding a first class medical, and who have completed the training in accordance with the operating documents. By only utilizing licensed ATP pilots as pilot in command, the proposed operations will not adversely affect safety because of the confined and controlled area of operations. The PIC will have additional qualifications and training prior to operations conducted under this exemption. Additionally, anytime the PIC or Safety Observer spots a potential hazard, such as a manned aircraft within close proximity to the designated flight area, the PIC will immediately land the S900 and operations will only resume after the hazard is clear of the area.

UAS Operating Parameters

The S900 will be operated with both a PIC, and a ground-based Safety Observer. The S900 is ground launched, requiring no runway for takeoff or landing. Once airborne, the S900 will fly at an altitude of 400 feet AGL or less over the designated area. Prior to flight, the PIC will set a designated flight area and flight parameters to ensure that the S900 will remain within the confines of the approved site and not exceed a maximum altitude of 400 feet AGL. If a critical issue is detected at any time, such as a low battery state or loss of data link, the S900 will immediately execute pre programmed safety procedures. The S900's small operational footprint and built-in safety protocol provide a much safer alternative for aerial imaging and would pose a minimal hazard to the NAS or public.

The S900 will only operate in areas deemed safe. In addition, there are to be no commercial airports within 5 NM and no general aviation airports within 3 NM of any of the sites. The S900 will also operate at an altitude of 400 feet AGL, or less, and as a result will be laterally de-conflicted from manned aircraft operations. By operating at low altitudes, Skyform asserts that the S900 will pose minimal or no threat to individuals or

structures on the ground and will remain well clear of any and all air traffic. Skyforms operational limitations require the PIC to file a Notice to Airmen (NOTAM) for S900 flights at each site, providing at a minimum radial/DME, radius, and a date/time group.

The S900 will be flown in accordance with day Visual Flight Rules (VFR) and only in Visual Meteorological Conditions (VMC) during daylight hours. The S900 will operate within 1 NM and VLOS of the PIC, (and the Safety Observer positioned next to the PIC) at an altitude of 400 feet AGL or less. The Safety Observer will be responsible for ensuring that the S900 remains within VLOS at all times and will also assist in spotting potential hazards.

Regarding the requirement in § 91.103 that the PIC be familiar with specific information before each flight such as weather and fuel requirements, as well as information found within approved flight manuals relating to aircraft performance and take-off and landing distances, Skyform notes that the S900 has no FAA-approved flight manual and therefore seeks exemption from this requirement. We will attain an equivalent level of safety by following the operating documents, submitted to the FAA as an appendix under separate cover. The S900 Operations Manual contains information comparable to that found in FAA-approved flight manuals.

With respect to operating altitudes, we request an exemption from the minimum safe altitude requirements in § 91.119. Skyform notes that § 91.119(c) provides that over sparsely populated areas the aircraft cannot be operated closer than 500 feet to any person, vessel, vehicle, or structure. The aircraft will be operating at a maximum of 400 feet AGL and can not comply with this requirement. Additionally, the S900s small size and carbon fiber airframe is less hazardous to persons and structures on the ground than a manned fixed-wing aircraft performing the same service. By operating at an altitude of 400 feet AGL or less, the S900 will not be in conflict with manned aircraft that are subject to this minimum altitude regulation.

Regarding the altimeter settings requirements in § 91.121, Skyform states that the S900 is not equipped with a programmable altimeter; rather, the S900 determines location and altitude using an onboard GPS. Moreover, because the S900 will be operating at or below 400 feet AGL, there is no need to maintain hemispherical cruising altitudes for de-confliction with manned aircraft. For the above reasons, Skyform seeks exemption from this regulation. We will attain an equal level of safety by using the onboard GPS. The S900’s altitude will also be monitored by the PIC and VO.

Regarding the fuel requirements in § 91.151, Skyform states the S900 is battery-operated, does not carry “fuel,” and the maximum duration of flight from a full battery charge is 18 minutes. Further, the operating documents describe the in-flight battery monitoring system and suggest landing the S900 when the voltage drops below 25%. Compliance with this regulation would leave the S900 with sufficient flight time, including unforeseen delays, to land safely. We request full exemption from this requirement, asserting that it is unnecessary because there are no intended landing points associated with these operations, and because the S900 is capable of landing safely anywhere in its designated operating area once battery power is exhausted. The risk or danger associated with failing to reach a safe landing point with 30 minutes of extra fuel does not exist with the S900, and that an equivalent level of safety can be attained because the S900 does not have to return to a landing point but can safely land anywhere over the intended flight area.

Public Interest

By authorizing S900 operations, the FAA would advance the public interest by reducing the number of manned aircraft in the NAS; reducing air and noise pollution; reducing the risk to life and property on the ground; and increasing agricultural economic growth as well as safety associated with industrial and commercial applications. There are a number of benefits of S900 operations compared to manned aircraft operations that are used for the same applications. Allowing S900 operations would reduce the burden on air traffic controllers; would reduce air and noise pollution from the manned aircraft that would otherwise be used; would reduce fuel use, as the S900 is battery-powered unlike the manned aircraft it would replace; and would reduce the risk to life and property on the ground, as the S900 contains no pilot and is constructed of a small, lightweight carbon fiber airframe.

Finally, high-resolution image data generated from S900 flights would provide scientists with important information that would assist efforts to maximize crop yields. This would result in a major increase in economic growth, which would be in the public interest.