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

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

June 16, 2015

Exemption No. 11823
Regulatory Docket No. FAA–2015–1106

Mr. Harrison B. Keller IV
Owner
KellAIR Aerial Solutions, LLC
2206 Holly Pine Circle
Orlando, FL 32820

Dear Mr. Keller:

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 April 15, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of KellAIR Aerial Solutions, LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct commercial and private real estate video and photography, mapping and land surveying, construction, forestry, and agriculture inspection.

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 Phantom 2, DJI Phantom 2 Vision+ v3, and DJI Phantom 3.

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[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, KellAIR Aerial Solutions, 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

[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.

aerial data collection. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, KellAIR Aerial Solutions, 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 Phantom 2, DJI Phantom 2 Vision+ v3, and DJI Phantom 3 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 June 30, 2017, unless sooner superseded or rescinded.

Sincerely,

John S. Duncan
Director, Flight Standards Service

Enclosures

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
DOCKET MANAGEMENT SYSTEM
1200 NEW JERSEY AVE., SE
WASHINGTON, DC

Regulatory Docket No._____

IN THE MATTER OF THE PETITION FOR EXEMPTION OF:

KellAIR Aerial Solutions, LLC

FOR AN EXEMPTION SEEKING RELIEF FROM THE REQUIREMENTS OF TITLE 14 OF THE CODE OF FEDERAL REGULATIONS SECTIONS: Part 21 Subpart H, 45.23 (b), 61.113(a) &(b), 91.7 (a), 91.103, 91.109 (a), 91.119 (c), 91.121, 91.151 (a), 91.405 (a), 91.407 (a)(1), 91.409(a)(1) &(a)(2), AND 91.417(a) & (b) CONCERNING COMMERCIAL OPERATION OF DJI PHANTOM 2 VISION+ v3, DJI PHANTOM 2 WITH ZENMUSE H3-3D GIMBLE MOUNT AND GOPRO HERO 3+ CAMERA, AND DJI PHANTOM 3 UNMANNED AIRCRAFT SYSTEMS
PURSUANT TO SECTION 333 OF
THE FAA MODERNIZATION AND REFORM ACT OF 2012
(PUBLIC LAW 112-95)

Submitted on
KellAIR Aerial Solutions, LLC
2206 Holly Pine Cir
Orlando, FL 32820
(757) 650-7018

KellAIR Aerial Solutions, LLC
ATTN: Harrison Keller
2206 Holly Pine Cir
Orlando, FL 32820
(757) 650-7018

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

Dear Sir or Madam,

The above requested exemptions would authorize KellAIR Aerial Solutions, LLC (KAS) to conduct commercial operations using the above mentioned Small Unmanned Aerial Systems (sUAS) in airspace regulated by the Federal Aviation Administration (FAA). Specific commercial applications for which KAS intends to operate include: commercial and private real estate video and photography, mapping and land surveying, construction, forestry, and agriculture inspection.

The Reform Act gives the Secretary of Transportation the authority to determine if certain sUAS may operate safely in the national airspace system (NAS) before completion of the FAA's plan and rulemaking to integrate sUAS into the NAS. The Reform Act directs the Secretary to consider which types of sUAS as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard to users of the national airspace or a threat to national security. If the secretary determines that such vehicles may operate safely in the NAS, the Secretary "shall establish requirements for the safe operation of such aircraft."

The granting of this exemption request will provide immediate benefit to agriculture, real estate, forestry, and construction industries by authorizing highly controlled sUAS operations within class G airspace, at or below 400 feet above ground level (ALG), in line of sight of an FAA certified Private Pilot during daylight hours and above controlled privately owned and operated property.

KAS's sUAS shall weigh less than 10 pounds including payload. They will operate at no more than 50 knots and have the capability to hover, and move vertically and horizontally simultaneously.

Operations would be conducted above privately owned and operated properties, with the consent of owner/operator. KAS operations will be performed by professional pilots; this will insure that the sUAS will "not create a hazard to users of the national airspace system or the public."

The grant of this exemption request is in the public interest, does not create a hazard to users of the NAS or the public, or pose a threat to national security.

In the following pages KAS addresses all areas of concern to include;

- Equivalent levels of safety
- Exemptions requested

KAS appreciates your consideration in this matter.

Warm Regards,

Harrison B. Keller IV
Owner
KellAIR Aerial Solutions, LLC

I. Contact Information

KellAIR Aerial Solutions LLC
ATTN: Harrison B. Keller IV
2206 Holly Pine Cir
Orlando, FL 32820
(757)650-7018
hbkeller@gmail.com

II. The Company

KellAIR Aerial Solutions was founded in 2015 by its Owner in an effort to provide the Central Florida area with unique business opportunities utilizing sUAS technology. sUAS is a much safer alternative to aerial imaging than the traditional use of light aircraft in the past.

KAS Owner/Operator is a current and qualified Airline Transport Pilot with over 4600 hours of flying experience. He is currently working for a well-known air carrier as a First Officer on the Boeing 747-400 which, while not a sUAS, ensures that he has an intimate knowledge of all types of airspace and a close relationship with the FAA along with its rules and regulations. He is, in addition, a current and qualified Certified Flight Instructor, Instrument Instructor, and Multi Engine Instructor with more than 500 hours of dual instruction given. While none of these qualifications have much to do with operating sUASs, they hold within them the knowledge and experience to operate safely and the accountability to operate within the requirements and guidelines set forth under Section 333.

KAS Owner/Operator has over 40 hours of sUAS experience in a hobby capacity.

III. Aircraft & Operations

Section 333 of the "FAA Modernization and Reform Act of 2012" states:
"… the Secretary of Transportation shall determine if certain unmanned aircraft systems may operate safely in the national airspace system… In making the determination under subsection (a). the Secretary shall determine, at a minimum – (1) which types of unmanned aircraft systems, if any, as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard to users of the national airspace system or the public or pose a threat to national security…"

➢ Aircraft

KAS will utilize the DJI Phantom 3 Professional, DJI Phantom 2 with a Zenmuse HD-3D gimbal mount with an attached GoPro Hero 3+ camera, and the DJI Phantom 2 Vision + to conduct its missions.

These aircraft have fail safe features to include geo fencing and lost link return home capability. DJI is the manufacturer of multirotor sUAS aircraft weighing less than 25lbs and has developed technology that will enhance safe sUAS operations within the NAS.

DJI Phantom

Model	**Phantom 3**	
Weight (Battery Included)	1280g	2.82 lb
Hovering Accuracy Vertical:	10cm	0.3
Horizontal:	1m	3.3 feet
Max Ascent Speed	5 m/s	16.4 feet/s
Max Descent Speed	3 m/s	9.8 feet/s
Max Speed	16 m/s	36
Max Flight Time	23 minutes	
Operating Temperature Range	-10°C to 40°C	

Model	**Phantom 2 Vision+**	
Weight (Battery Included)	1242g	2.74lb
Hovering Accuracy Vertical:	0.8m	2.6 feet
Horizontal:	2.5m	8.2 feet
Max Ascent Speed	6 m/s	19.7 feet/s
Max Descent Speed	2 m/s	6.7 feet/s
Max Speed	15 m/s	34
Max Flight Time	25 minutes	
Operating Temperature Range	0°C to 40°C	

Model	**Phantom 2 with Gimbal and GoPro**	
Weight (Battery Included)	1242g	2.74lb
Hovering Accuracy Vertical:	0.8m	2.6 feet
Horizontal:	2.5m	8.2 feet
Max Ascent Speed	6 m/s	19.7 feet/s
Max Descent Speed	2 m/s	6.7 feet/s
Max Speed	15 m/s	34

Max Flight Time	25 minutes	
Operating Temperature Range	0°C to 40°C	

Note: The DJI Phantom 2 is the same type of aircraft as the DJI Phantom 2 Vision +. The only difference is the mounting hardware. The two aircraft weigh the same with all attached hardware.
Note: At the time of this request, DJI has not released a user manual for it's Phantom 3. The above specifications are available on the manufacturer website. All training, safety, and maintenance procedures are identical to the DJI Phantom 2. The procedures outlined in the Phantom 2 user manual will be utilized with all platforms. Once the Phantom 3 manuals are available, they will be provided on request.

➢ Operations

A. The sUAS shall not operate within 5 nautical miles of the geographic center of any airport as denoted on the current FAA-published aeronautical chart unless a letter of agreement with that airport's management is obtained, and the operation is conducted in accordance with a NOTAM as required by the operator's COA. This letter of agreement with the airport management shall be made available to the Administrator upon request.

B. The sUAS will only operate within the lateral boundaries of approved privately owned and operated property. An Operations Area within those boundaries will be established for each flight. These areas will be free of unnecessary hazards or risks and non-participating personnel.

    a. The sUAS shall only operate within a pre-defined Operations Area that shall be thoroughly inspected by the PIC for buildings, overhangs, obstacles, wires, poles, people, vehicles, sun angle, shadows, glare, reflective surfaces, clouds, smoke, and terrain among other potential hazards

C. Flights shall be conducted under day visual meteorological conditions (VMC).

    a. In addition, the sUAS shall 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.

    b. SUAS operations shall not be conducted during night, as defined in 14 CFR §1.1.

    c. Flights shall not be conducted under special visual flight rules (SVFR).

D. Flights shall be operated at an altitude at or below 400 feet AGL.

E. The PIC shall be prohibited from operating the sUAS from any moving device or vehicle.

F. The sUAS shall be operated within VLOS of the PIC.

    a. The PIC shall maintain VLOS without the aid of telescopes, cameras or other devices.

    b. The PIC will maintain VLOS with their own vision, which includes the use of eyeglasses or corrective lenses as specified on the PIC's medical certificate.

G. The sUAS shall remain clear and yield the right of way to manned operations and activities at all times including, but not limited to, ultralight vehicles, parachute activities, parasailing activities, hang gliders, etc.

H. KAS will require the PIC and SO to have successfully completed a qualification process which will include ground and flight training, as outlined in the Manufacturer's Operating Manual.

I. The PIC's primary responsibility while in flight is the safe operation of the sUAS.

➢ Permitting

A. All required permissions and permits shall be obtained from territorial, state, county, or city jurisdictions, including local law enforcement, or other appropriate governmental agencies.

B. At least three days before a scheduled mission, KAS shall submit a written plan of activities to the local flight standards district office with jurisdiction over the area of the proposed flight. The 3-day notification may be waived with the concurrence of the FSDO.
    1. The plan of activities shall include at least the following:
    2. Dates and times for all requested flights
    3. Name and phone number of KAS sUAS Flight Operations
    4. Name, certificate, phone number of the PIC responsible
    5. Make, and model of sUAS to be used
    6. Statement from KAS that it will be operating on approved privately owned and operated property; the list of those who gave permission shall be made available on request.
    7. Description of the flight activity, including maps or diagrams of any area over which flights will be conducted, the relationship of that area to any nearby city, town, etc., and the altitudes essential to accomplish the operation
    8. Signature of exemption-holder or representative

C. Documents required under 14 CFR §91.9 and §91.203 shall be readily available to the PIC any time the aircraft is in operation. These documents shall be made available to the Administrator or any law enforcement official upon request.

D. KAS shall request a Notice to Airman (NOTAM) not more than 72 hours in advance, but not less than 48 hours prior to the operation.

E. KAS shall obtain the consent of all persons involved in the operation and ensure that only consenting persons be allowed within 500 feet of the Operations Area.

IV. Public Interest

- The public's interest is achieved by the safe integration of sUAS into the NAS.
- sUAS can offer a low cost alternative to the traditional methods of aerial video and photography taken from fixed wing or rotor aircraft. This opens up financial boundaries for consumers to take video, pictures, and inspections of their property.
- sUAS offers reduced noise and a much smaller environmental impact than traditional aircraft.
- With its light weight and small footprint as well as lack of fuel (in a traditional sense), any incident or accident is much less likely to cause damage to persons or property.

V. Regulations- Exemptions Requested

Pursuant to 14 C.F.R. § 11.81 (e), KAS seeks exemption from the below mentioned regulations and provides reason as to why the exemption should be approved based on the level of safety at least equal to that of which the rules require.

14 C.F.R. Part 21 Subpart H - Airworthiness Certificates

- 14 C.F.R. Part 21 Subpart H States: *The procedural requirements for the issuance of airworthiness certificates as required by 14* C. *F. R. § 91 203(a)(l)*

Given the small size of the UAS, the limited operating areas and meticulous procedures defined within the training and operations section of this document, an exemption from Part 21 Subpart H meets the requirements of an equivalent level of safety under Part II and section 333 of the "Reform Act" with consideration "of size, weight, speed, operation capability, and proximity to airports and populated areas of the particular UAS."

	DJI P2 W/ Gimbal and GoPro	DJI P2 Vision +	DJI Phantom 3
Weight	1242g/2.74lb	1242g/2.74lb	1280g/2.82lb
Speed	15 m/s or 34MPH	15 m/s or 34MPH	15m/s or 36MPH
Power	5200 mAh 3S LiPo Battery	5200 mAh 3S LiPo Battery	4480 mAh 4S LiPo Battery

• No operations within one statute mile; Prior notice given to ATC tower/Airport Operator within five statute miles.
• Minimum distance of 250 ft from persons, structures, roads and vehicles not being photographed.
• Operations will be contained within one square mile and all dangers identified and mitigated before the flight plan is finalized into the GPS flight planning program.

Note: The FAA has recently set precedence to this regulation within similar given parameters and should consider exemption approval on this basis. See exemption approvals for Astraeus Aerial, Aerial MOB, HeliVideo Productions. RC Pro Productions. Snaproll Media and Pictorvision.

14 C.F.R. 45.23(b) - Aircraft Marking and Identification Requirements

A. 14 C.F.R. § 45.23(b): Markings of the Aircraft: states:
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.*

KAS will ensure compliance with§ 45.29(t) to meet the intent of the regulation by placing the word "experimental" on the fuselage of the air vehicle(s).

NOTE: The FAA has set precedence to this regulation within like given parameters and an exemption should be considered and approved on this basis *along with previous exemptions: Nos. 10700, 10167 and I0/67A. Also. see most recent exemption approvals for Astraeus Aerial. Aerial MOB, HeliVideo Productions, RC Pro Productions. Snaproll Media, and Pictorvision for further justification of approval.*

14 C.F.R. 61.113 (a)(b) - Private and Pilot Privilege and Limitations

- 14 C.F.R. § 61.113: *(a) Except as provided in paragraphs (b) through (g) of this section no person who holds a private pilot certificate may act as 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.

1. Due to the fact that there are no standards for private or commercial sUAS operations, KAS requests to utilize at least private pilots with a third class medical in support of its own operations.

2. Knowledge of flight characteristics and the Federal Aviation Regulations (FARs), along with the ability to physically manipulate the controls of the sUAS are the critical aspects of the requested operation. KAS feels this can be accomplished by a private pilot that has specific training on the sUAS aircraft and operates in accordance with the KAS sUAS Operating Manual, Federal Aviation Regulations, local, state and federal laws.

3. The risks associated with the operation of a sUAS are so diminished from the level of risk associated with commercial aviation operations contemplated by Part 61 when drafted, that allowing operations of the sUAS as requested with a private pilot as the PIC exceeds the present level of safety achieved by 14 C.F.R. §61.113 (a) & (b).

4. Equivalent or better safety levels will be achieved as there will be no human beings on board the sUAS aircraft.

5. FAA has authority to waive pilot requirements for commercial operations under 49 U.S.C §44701(f).

14 C.F.R. 91.7(a)- Civil Aircraft Airworthiness

- 14 C.F.R. 91.7(a) States*: No person may operate a civil aircraft unless it is in an airworthy condition.*

As no such certificate will be applicable in the form contemplated by the FARs, this Regulation is inapplicable. In an effort to provide an equivalent level of safety, daily pre and post flight inspections will accomplished in accordance with manufactures maintenance manuals(s) and guidance.

NOTE: The FAA has set precedent by previously issuing exemptions for§ 91. 7(a): Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167, 1067A, 10602, 32827, and 10700. Also, see most recent exemption approvals for Astraeus Aerial. Aerial MOB, HeliVideo Productions, RC Pro Productions. Snaproll Media, and Pictorvision for further justification of approval.

14 C.F.R. 91.103- Preflight Action

- 14C.F.R. 91.103 States: *Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information must include- (paragraphs a, b, 1 and 2)*

A pre-flight mission brief must be attended by all crew members. This pre-flight mission brief will contain weather and all flight information including emergency and abort procedures. A

signature will be required by all crew members indicating they have received the pre-mission brief and have read and NOTAMS or other procedural updates which may have impact to standard operating procedures. In addition, the PIC will verify air vehicle is ready for flight by coordinating with the maintenance technician during preflight inspection.

The exemption requested for this section is specifically addressed toward the requirements which do not apply to sUAS operations such as runways and air traffic control integration.

NOTE: As previously stated, air traffic control and airport operator will be notified prior to any operations being executed within five statute miles

NOTE: The FAA has recently set precedence to this regulation within like given parameters and an exemption should be approved on this basis. See exemption approvals for Astraeus Aerial. Aerial MOB. HeliVideo Productions. RC Pro Productions, Snaproll Media and Pictorvision.

14 C.F.R. 91.109(a)- Flight Instruction

- 14 C.F.R. 91.109(a) States: *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.*

The majority of sUAS by design are developed with single operational control through the use of pre-determined GPS enabled waypoints programmed before or during flight in addition to the use of a single hand held transmitter or control station controlled by the PIC. The design does not allow for dual controls during flight training and therefore the exemption is requested to qualify/certify operators as required by the manufacturer along with specific operations training and procedures identified above within section II.

An equivalent level of safety will be ensured during training operations by utilizing the same flight planning process for normal operations. In the flight planning document, all ground hazards will be identified and mitigation techniques will be enacted to ensure flights stay outside of 250 ft of any improved roads, vehicles, persons or structures. All training operations will be conducted within a confined space on private land in-which permission has been obtained by land owner prior to the execution of training.

NOTE: The FAA has set precedent by previously issuing exemptions for§ 91.1 09(a): Exemption Nos. 5778K and 9862A. Also, see most recent exemption approvals for Astraeus Aerial, Aerial MOB. HeliVideo Productions, RC Pro Product ions. Snaproll Media and Pictorvision for further justification of approval.

14 C.F.R. 91.119 (c) - Minimum Safe Altitudes

- 14 C.F.R. 91.119 (c) States: *Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes: (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.*

1. The sUAS will be operated at or below 400 feet AGL.

2. KAS shall obtain the consent of all persons involved in the operation and ensure that only consenting persons be allowed within 500 feet of the Operations Area.

3. The sUAS will only operate within the lateral boundaries of approved privately owned and operated property. An Operations Area within those boundaries will be established for each flight. These areas will be free of unnecessary hazards or risks and non-participating personnel.

4. Given the size, weight, speed, material, and operation of the sUAS aircraft, equivalent levels of safety will be achieved.

14 C. F. R. 91.121 - Altimeter Settings

- 14 C. F. R. 91.121 - States: *Each person operating an aircraft shall maintain the cruising altitude or flight level of that aircraft, as the case may be, by reference to an altimeter that is set, when operating ...*

1. SUAS will not have a barometric altimeter, and may use a GPS altitude read out indication instead, so an exemption may be needed.

2. An equivalent level of safety will be achieved by the operator as the sUAS uses AGL height from its initialization/takeoff point.

NOTE: The FAA has recently set precedence to I his regulation within like given parameters and an exemption should be considered on this basis. See exemption approvals for Astraeus Aerial. Aerial MOB, HeliVideo Productions, RC Pro Productions, Snaproll Media and Pictorvision.

14 C.F.R. 91.151(a)- Fuel Requirements for Flight in VFR Conditions

- 14 C.F.R. 91.151(a) States: *No person may begin 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- (I) During the day to fly after that for at least 30 minutes:*

This regulation is written based on the capabilities of a traditional aircraft which have flight times of several hours or greater; therefore, with the majority of sUAS which have flight times of only an hour or less, this regulation would effectively deny the ability of the air vehicle to operate.

KAS feels an equivalent level of safety can be obtained by terminating the flight prior to the following.

Aircraft Fuel (Battery) Requirements

DJI Phantom 2 - 25 minutes or 25% whichever occurs first.
DJI Phantom 3 - 23 minutes or 25% whichever occurs first.

1. The DJI Phantom 2 and 3 have a second level of safety that is achieved through the use of an aircraft battery monitoring system. The aircraft system will alert the operator of low battery voltage and return the aircraft to its take off location before battery capacity is depleted.

2. KAS will not operate sUAS at night in accordance with 14 CFR 1.1

3. An equivalent level of safety will be achieved because these sUAS are limited in size, operational purposes of the sUAS, and shall only fly above approved privately owned and operated property at or below 400 feet AGL, it does not bear the same risks associated with this section's requirements.

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NOTE: The FAA has set precedent by previously issuing exemptions for§ 91.151 (a): Exemption Nos. 10673, 2689F, 5745, and 10808. Also, see most recent exemption approvals for Astraeus Aerial. Aerial MOB. HeliVideo Productions. RC Pro Productions. Snaproll Media and Pictorvision for further justification of approval.

14 CFR 91.405 (a) – Maintenance Required

- 14 CFR 91.405 (a) States: *Each owner or operator of an aircraft – (a) Shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter.*

This section and Part 43 apply only to aircraft with an airworthiness certificate; therefore these sections will not apply.

In the absence of regulatory provisions dealing with sUAS operation for maintenance required. See Manufactures Maintenance Recommendations for maintenance required.

1. Maintenance will be accomplished by KAS pursuant to the manufacturer's recommendations and sUAS Operating Manual and Inspection Program.

2. Maintenance, preventive maintenance, rebuilding, and alteration will be successfully accomplished by trained personnel only.

3. KAS will maintain daily of pre and post flight inspections and ensure the aircraft is in a flight ready status prior to conducting every mission.

4. KAS shall only operate its sUAS with all systems functioning per manufactures specification in a discrepancy free condition.

5. These records will be maintained at the principle base for operation for the life of the aircraft or as required by Federal Aviation Regulations.

KAS and the Aircraft Manufacturer (DJI) are the most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition. This maintenance process allows for an equivalent level of safety to be achieved due to the limited size, scope and area of operations.

NOTE: The FAA has recently set precedence to this regulation within like given parameters and an exemption should be approved on this basis. See exemption approvals for Astraeus Aerial. Aerial MOB, HeliVideo Productions. RC Pro Productions. Snaproll Media and Pictorvision.

14 CFR 91.407 (a) (1) – Operation after Maintenance, Preventive Maintenance, Rebuilding or Alteration

- 14 CFR 91.407 (a) (1) States: (a) *No person may operate any aircraft that has undergone maintenance, preventative maintenance, rebuilding, or alteration unless – (1) It has been approved for return to service by a person authorized under §43.7 of this chapter.*

This section and Part 43 apply only to aircraft with an airworthiness certificate; therefore these sections will not apply.

In the absence of regulatory provisions dealing with sUAS operation for maintenance required. See Manufactures Maintenance Recommendations for maintenance required.

1. Maintenance will be accomplished by KAS pursuant to the manufacturer's recommendations and sUAS Operating Manual and Inspection Program.

2. Maintenance, preventive maintenance, rebuilding, and alteration will be successfully accomplished by trained personnel only.

3. Functional test flights will be performed by the PIC when required, the sUAS shall only be returned to service when this functional test flight is successfully completed. If a mechanical issue arises the sUAS can land safely or be recovered within the Operations Area.

4. KAS shall only operate its sUAS with all systems functioning per manufactures specifications in a discrepancy free condition

5. These records will be maintained at the principle base of operation for the life of the aircraft or as required by the Federal Aviation Regulations.

KAS and the Aircraft Manufacturer (DJI) are the most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition. This maintenance process allows for an equivalent level of safety to be achieved due to the limited size, scope and area of operations.

NOTE: The FAA has recently set precedence to this regulation within like given parameters and an exemption should be approved on this basis. See exemption approvals for Astraeus Aerial. Aerial MOB, HeliVideo Productions. RC Pro Productions. Snaproll Media and Pictorvision.

14 CFR 91.409 (a) (1) and (2) – Inspections

- 14 CFR 91.409 (a) (1) and (2) States: *(a) Except as provided in paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had – (1) An annual inspection in accordance with part 43 of this chapter and has been approved for return to service by a person authorized by §43.7 of this chapter ; or (2) An inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.*

This section and Part 43 apply only to aircraft with an airworthiness certificate; therefore these sections will not apply.

In the absence of regulatory provisions dealing with sUAS operation for maintenance required. See Manufactures Maintenance Recommendations for maintenance required.

1. Maintenance will be accomplished by KAS pursuant to the manufacturer's recommendations and sUAS Operating Manual and Inspection Program.

2. Maintenance, preventive maintenance, rebuilding, and alteration will be successfully accomplished by trained personnel only.

3. Functional test flights will be performed by the PIC when required, the sUAS shall only be returned to service when this functional test flight is successfully completed. If a mechanical issue arises the sUAS can land safely or be recovered within the Operations Area.

4. KAS shall only operate its sUAS with all systems functioning per manufactures specifications in a discrepancy free condition

5. These records will be maintained at the principle base of operation for the life of the aircraft or as required by the Federal Aviation Regulations.

KAS and the Aircraft Manufacturer (DJI) are the most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition. This maintenance process allows for an equivalent level of safety to be achieved due to the limited size, scope and area of operations.

NOTE: The FAA has recently set precedence to this regulation within like given parameters and an exemption should be approved on this basis. See exemption approvals for Astraeus Aerial. Aerial MOB, HeliVideo Productions. RC Pro Productions. Snaproll Media and Pictorvision.

14 CFR 91.417(a) and (b) – Maintenance Records

- 14 CFR 91.417(a) and (b) States: *(a) Except for work performed in accordance with §91.411 and 91.413, each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section: 1(i-iii), (2) (i-vi); (b) The owner or operator shall retain records for the periods prescribed: (paragraphs 1-3)*

1. Maintenance will be accomplished by KAS pursuant to the manufacturer's recommendations.

2. Maintenance, preventative maintenance, rebuilding, and alteration maintenance record keeping will be performed by trained personnel and entered into the respective aircraft maintenance log at completion of each event.

3. These records will be maintained at the principle base for operation for the life of the aircraft or as required by the Federal Aviation Regulations.

4. KAS and the Aircraft Manufacturer (DJI) are the most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition. This maintenance process allows for an equivalent level of safety to be achieved due to the limited size, scope and area of operations.

KAS and the Aircraft Manufacturer (DJI) are the most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition. This maintenance process allows for an equivalent level of safety to be achieved due to the limited size, scope and area of operations.

NOTE: The FAA has recently set precedence to this regulation within like given parameters and an exemption should be approved on this basis. See exemption approvals for Astraeus Aerial. Aerial MOB, HeliVideo Productions. RC Pro Productions. Snaproll Media and Pictorvision.