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

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

June 23, 2015

Exemption No. 11887
Regulatory Docket No. FAA–2015–0747

Mr. Jonathan William Held
119 Loma Alta Drive
Oceanside, CA 92054

Dear Mr. Held:

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 20, 2015, you petitioned the Federal Aviation Administration (FAA) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct commercial aerial photography and videography.

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 P2 Mulitrotor.

n 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. 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, Mr. Jonathan William Held 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.

Conditions and Limitations

In this grant of exemption, Mr. Jonathan William Held 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 P2 Mulitrotor 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,

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

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC

March 20, 2015

Dear Sir or Madam,
I, Jonathan Held, am writing pursuant to the FAA Modernization and Reform Act of 2012 Section 333 and the procedures contained within 14 C.F.R. 11, to request exemption from the Federal Aviation Regulations listed below so that I may operate a small Unmanned Aircraft System (sUAS) within the National Airspace System for the purpose of high resolution commercial aerial photography and videography.
I am a licensed pilot (ASEL, ASES, Glider) and instructor (CFIG). Because of this I have a full understanding of the value of aircraft inspection, maintenance, flight safety awareness and procedures, and use of the National Airspace System. Furthermore I have over 100 hours of experience flying an Unmanned Aircraft (UA).

The UA (henceforth called the P2 Mulitrotor) for which I seek exemption is a custom built vertical take-off 8 motor multirotor system with a maximum gross weight of 32 pounds and dimensions of 56 inches in diameter and 20 inches in height. The system is electrically powered by Lithium Polymer batteries and has a maximum speed of 40 knots. The P2 Multirotor incorporates multiple safety measures including an auto land feature in the event of a lost communication or GPS link, motor redundancy to assure controlled flight in the case of a motor failure, frequency hopping radio technology to prevent control loss due to radio interference, telemetry to monitor battery power during flight, and the use of a robust and reliable flight controller. The P2 Multirotor operation follows safety procedures and operating limitations (including preflight checklist) set out in the P2 Multirotor Pilot Operators Handbook.

Respectfully submitted,

Jonathan W. Held

Jonathan William Held
P2 Photography

I. Contact Information:

Jonathan William Held
119 Loma Alta Drive
Oceanside, CA 92054

jon@p2photography.net
(858)-602-2839

CFIG 3150235

II. The Specific Sections of Title 14 of the Code of Federal Regulations From Which I Seek Relief:

61.113 (a)	Private Pilot Privileges and Limitations
91.7 (a)	Civil Aircraft Airworthiness
91.119 (b) and (c)	Minimum Safe Altitudes
91.121	Altimeter Settings
91.151 (a)(1)	Fuel Requirements for Flights in VFR Conditions
91.405 (a)	Maintenance Required
91.407 (a)(1)	Operation After Maintenance
91.409 (a)(1) and (2)	Inspections
91.417 (a) (iii) and (b)	Maintenance records

III. Extent of Relief and the Reason for Requesting Such Relief:

I request an exemption from **14 C.F.R. 61.113 (a)** so I may fly the P2 Multirotor (a powered aircraft) commercially on the basis of my Private (ASEL) rating.

I seek relief from **C.F.R. 91.7 (a)**, as the P2 Multirotor does not have an airworthiness certificate and no standard exists for determining airworthiness.

Considering that the most desirable range of altitudes for photography and videography from a UA is between 20 and 500 feet, I request an exemption from **14 C.F.R. 91.119 (b)** with the exception of flight over an open air assembly of persons or any person not involved with the UA flight directly. To keep 1000 feet above the highest obstacle within a 2000 foot horizontal radius would require the UA to fly higher than is safe. Furthermore, to keep 1000 feet above the highest obstacle within 2000 feet would defeat a commonly requested use of a UA, which is low altitude photography of buildings and structures. Similarly I request an exemption from **14 C.F.R. 91.119 (c)** as it would prove difficult in many practical situations to takeoff and execute flight while keeping 500 feet away from any person, vessel, vehicle, or structure. I propose that the P2 Multirotor maximum altitude be established at 500 feet Above Ground Level.

Furthermore I propose that P2 Multirotor flight operations would be prohibited while non-participating persons are within 100 feet of the UA unless those persons remain in or

under structural protection during the flight, or if those persons are necessary to the purpose of flight, there is no undue hazard to them and they have been given a detailed safety briefing. Nevertheless, all persons shall stand back at least 25 feet during takeoff and landing.

Due to the local and low altitude flight profile of the P2 Multirotor I seek exemption from **14 C.F.R. 91.121**. Furthermore the P2 Multirotor has a GPS altimeter which is set to read 0 (zero) feet at the takeoff point prior to each flight. All P2 Multirotor flights are "local", and unaided visual contact is maintained with the aircraft during all flight operation.

The P2 Multirotor is electrically powered and carries no fuel onboard therefore I request an exemption from **91.151 (a) (1)**.

The P2 Multirotor has no airworthiness certificate and there is no person authorized to perform the required inspections and maintenance therefore I request an exemption from **14 C.F.R. 91.405 (a)**.

The P2 Multirotor has no airworthiness certificate and there is no person authorized to return of the aircraft to service therefore I request an exemption from **14 C.F.R. 91.407 (a)(1)**.

The P2 Multirotor has no airworthiness certificate and there is no person authorized to perform an annual inspection therefore I request an exemption from **14 C.F.R. 91.409 (a)(1) and (2)**.

The P2 Multirotor has no airworthiness certificate and there is no person authorized to log maintenance records nor to approve the aircraft for return to service therefore I request an exemption from **14 C.F.R. 91.417 (a)(iii) and (b)**.

IV. The Reasons Why Granting My Request Would be in the Public Interest or How It Would Benefit the Public as a Whole:

Because of the passage of the FAA Modernization and Reform Act of 2012 specifically TITLE III subtitle B-Unmanned Aircraft Systems it is a priori knowledge that the integration of sUAS into the National Airspace System is in the public interest. Specific to my request however is the rapidly growing need and desire for quality aerial photographs and videography. It is my intent to make use of the P2 Multirotor to address those needs. While it is commonly known that a UA is a great tool for low altitude aerial photography and videography, it is not so well understood that the use of a UA often allows for better aerial photography and videography in general. Since the UA and Pilot In Command are present at the site of interest, the photographer or videographer has the ability to wait until the conditions (of light etc.) are at an optimum. When operating from a manned aircraft this is rarely the case. Manned aircraft typically launch many miles from the site of interest and thus a photographer or videographer must accept the conditions of lighting that are found upon arrival. The public benefit of better images is

very real both economically and aesthetically. Furthermore a manned aircraft is loud when it dwells over a given site whereas a UA is far quieter and will result in quieter skies and less complaints. In addition the FAA Office of Aviation Policy and Plans has stated (in the Notice of Proposed Rulemaking Regulatory Evaluation, Small Unmanned Aircraft Systems 14 CFR Part 107, page 17) , "Consequently, once a small UAS aerial photography market becomes established, it would **increase safety** by substituting an unmanned aviation operation using a very light aircraft for a more complex manned aviation operation that uses a much heavier aircraft. A heavier manned aircraft would pose more risk to the public in the event of an accident. **This market would also generate significant cost savings to the economy**."

V. The Reasons Why Granting the Exemption Would Not Adversely Affect Safety or How the Exemption Would Provide a Level of Safety That is at Least Equal to the Level Provided by the Rule From Which Relief is Sought:

General:
I have been a commercial pilot and flight instructor since 2006 and a rated pilot since 1998. I have 29 years of experience using the National Airspace System. I also have more than 100 hours of UA experience without incident. As is done with manned flight, any UA flight should and will be conducted with appropriate consideration to the safety of persons, property and other aircraft. This includes the use of a written takeoff checklist, regular aircraft maintenance and inspection, reference to weather information, airspace maps, aircraft manuals, use of a visual observer, etc. The P2 Multirotor is an octocopter with 8 motors. The loss of any one motor will not affect the ability of the aircraft to maneuver and land safely. The P2 Multirotor has battery power monitoring telemetry and uses an XAircraft SuperX flight controller that has an automated return home feature which will land the aircraft safely in the event of loss of the radio control communication or GPS link. Furthermore the SuperX is proven as a reliable flight controller and has no reported "flyaways" as is the case with some other flight controllers. The P2 Multirotor radio transmitter and receiver operate on a 2.4 GHz frequency and utilize frequency-hopping technology, which provides superb protection from potential radio interference. In addition the FAA Office of Aviation Policy and Plans has stated (in the Notice of Proposed Rulemaking Regulatory Evaluation, Small Unmanned Aircraft Systems 14 CFR Part 107, page 17) , "Consequently, once a small UAS aerial photography market becomes established, it would **increase safety** by substituting an unmanned aviation operation using a very light aircraft for a more complex manned aviation operation that uses a much heavier aircraft. **A heavier manned aircraft would pose more risk to the public in the event of an accident.**"

61.113 (a) Private Pilot Privileges and Limitations:
Although I do not have a commercial power rating I believe the knowledge and skill set of my commercial glider and instructor rating (CFIG) to be sufficient for safe commercial operation of the P2 Multirotor. I have logged over 500 hours instructor time in gliders

with over 1300 hours pilot in command. I also hold ASEL and ASES ratings and a third class medical certificate.

91.7 (a) Civil Aircraft Airworthiness:
The P2 Multirotor has no airworthiness certificate so no standard exists for airworthiness. However, regular airworthiness inspections and maintenance will be carried out, including preflight preparation and preflight procedures including a preflight checklist. Furthermore, compliance with all operating documents, manufacturers recommendations, safety bulletins, and airworthiness inspections will be faithfully carried out by the owner/operator in the spirit of the safety considerations of any relevant C.F.R.'s. I have maintained, inspected and flown a UA for several years without incident.

91.119 (b) and (c) Minimum Safe Altitudes:
To be useful the P2 Multirotor must be able to fly below 1000 feet above the highest obstacle and within a 2000 foot radius. The small size, low weight, tight maneuvering capability, vertical takeoff profile, flight controller reliability, motor redundancy and the lack of combustible fuel onboard the P2 Multirotor allow for its safe use at lower altitudes and in closer proximity to persons and structures than the altitude and distance limitations required by **91.119 (b) and (c).** 14 C.F.R 91.119 (d) exempts helicopters from the limitations of **91.119 (b) and (c).** While the P2 Multirotor is not a helicopter (owing to the fact that it does not have engine-driven rotors), it is a rotorcraft and it is intended primarily for hovering. I propose that the P2 Multirotor can operate safely within the limitations of 91.119 (d). More specifically I propose (as stated in the P2 Multirotor Pilot Operating Handbook section 2) that P2 Multirotor "flight operations are not allowed while non-participating persons are within 100 feet of the UA unless those persons remain in or under structural protection during the flight, or if those persons are necessary to the purpose of flight, there is no undue hazard to them and they have been given a detailed safety briefing. Nevertheless, all persons shall stand back at least 25 feet during takeoff and landing."

The current standard limitation of a 400 foot AGL maximum altitude for a UA in itself does not provide adequate safety. Helicopters regularly fly below 400 feet, and while airplanes are theoretically required to fly above 500 feet AGL (except in proximity of an airport), it certainly is possible that one *will* be flying below 400 feet for a variety of reasons. The point is that *visibility*, *traffic identification* and *collision avoidance* are necessary for safe operation. Safe UA flight requires that the Pilot In Command and/or the Visual Observer identify traffic in a timely fashion that will allow the UA to effectively maneuver out of the way. See and avoid is the key to safe operation. The altitude and flight path of the P2 Multirotor is always constrained by the consideration of timely air traffic collision avoidance. The P2 Multirotor will always remain clear of and give way to any manned aircraft operations as well as giving way to any other UA or hazard deemed to pose a collision threat. Therefore I propose that the P2 Multirotor can operate safely to a maximum altitude of 500 feet Above Ground Level or (as stated in the P2 Mulitrotor Pilot Operating Handbook section 2), " Flight altitude shall not exceed 500 feet AGL".

91.121 Altimeter Settings:
The most useful and relevant altitude information for any P2 Multirotor flight is the height above ground level. The P2 Multirotor has a GPS altimeter which is set to 0 (zero) elevation at the takeoff site. The GPS altimeter has a proven accuracy. Concerns regarding the altimeter reading should be alleviated by the fact that all P2 Multirotor flights are local line-of-sight in a confined area in Visual Meterological Conditions. Visibility is paramount and see and avoid is always in play. A Visual Observer is always onsite during P2 Multirotor flights to act as a traffic spotter. The AIM 7-2-3 describes 75 feet as the maximum acceptable error in barometric altimeters. If an airplane were flying at 500 feet AGL by reference to a barometric altimeter with a 75 foot error then it may be flying as low as 425 feet. Again I state that *see and avoid* is what provides the element of safety.

91.151 (a)(1) Fuel requirements for Flights in VFR Conditions:
The P2 Multirotor carries no fuel as it is an electrically powered aircraft. However, adequate power reserves for extended flight in the case of unexpected situations can be readily achieved by flight planning and power consumption telemetry such that the return to the landing point and the landing will be accomplished with at least 25% battery power remaining.

91.405 (a) Maintenance Required:
Since the P2 Multirotor has no airworthiness certificate the owner/operator will be responsible for the maintenance, repairs and alterations of the P2 Multirotor. Such maintenance will be carried out in accordance to the manufacturers recommendations and in the spirit of the safety considerations of the relevant C.F.R.s. As owner, operator and Pilot In Command of the P2 Multirotor it is in my best interest to assess its condition at all times and to provide quality service and repairs. I have maintained, inspected and flown a UA for four years without incident.

91.407 (a)(1) Operation After Maintenance:
The owner/operator will be responsible for the approval of the aircraft for return to service as well as making logbook entries of such approval. As the owner, operator and Pilot In Command of the P2 Mulitrotor I am the person most intimately aware of the condition of my aircraft. It is in my best interest to track its service and repair history and to assess its condition at all times. I have maintained, inspected and flown a UA for four years without incident.

91.409 (a)(1) and (2) Inspections:
The owner/operator will be responsible for the inspections and maintenance of the P2 Multirotor. As the owner, operator and Pilot In Command of the P2 Mulitrotor it is in my best interest to assess its condition at regular and frequent intervals. Inspections will be made in the spirit of the safety considerations of the relevant C.F.R.'s. I have maintained, inspected and flown a UA for four years without incident.

91.417 (a)(iii) and (b) Maintenance records:

The owner/operator will be responsible for logging of maintenance, repairs, alterations and inspections. The owner/operator will be responsible for the approval of the aircraft for return to service. It is in my best interest to track the service and repair history of the P2 Multirotor and to assess its condition at all times. I have maintained, inspected and flown a UA for four years without incident.

VI. Summary for Public Distribution:

1) I, Jonathan Held, seek relief from the FAR Part 14 Sections listed below so that I may legally operate a small Unmanned Aircraft System (sUAS) within the National Airspace System for the purpose of high resolution commercial aerial photography and videography:

61.113 (a)	Private Pilot Privileges and Limitations
91.7 (a)	Civil Aircraft Airworthiness
91.119 (b) and (c)	Minimum safe altitudes
91.121	Altimeter settings
91.151 (a)(1)	Fuel requirements for flights in VFR conditions
91.405 (a)	Maintenance required
91.407 (a)(1)	Operation after maintenance
91.409 (a)(1) and (2)	Inspections
91.417 (a)(iii) and (b)	Maintenance records

I am a licensed pilot (ASEL, ASES, Glider) and instructor (CFIG). I have a full understanding of the value of aircraft inspection, maintenance and flight safety procedures and use of the National Airspace System. Furthermore I have 4 years of experience flying an unmanned aircraft (UA).

The multirotor (hereafter called the P2 Multirotor) for which I seek exemption is a custom built vertical take-off system with a maximum gross weight of 32 pounds and dimensions of 56 inches in diameter and 20 inches in height. The system is electrically powered by Lithium Polymer batteries and has a maximum speed of 40 knots. The P2 Multirotor incorporates multiple safety measures including an auto land feature in the event of a lost communication or GPS link, motor redundancy to assure controlled flight in the case of a motor failure, frequency hopping radio technology to prevent control loss due to radio interference, telemetry to monitor battery power during flight and the use of a robust and reliable flight controller. The P2 Multirotor operation follows safety procedures and operating limitations set out in the P2 Multirotor Pilot Operators Handbook. An equivalent level of safety has been described for each requested C.F.R. exemption and my years of experience using the National Airspace System will provide an additional level of safety during flight operations.

2) Description of the Nature of the Exemptions Sought:

The exemptions sought are to allow the use of a UA for commercial purposes (aerial photography and videography) without an airworthiness certificate but under the safety guidelines set forth by the FAA for UA operation.

61.113 (a) Private Pilot Privileges and Limitations:
Exemption will allow the private pilot certificate holder to fly the UA commercially.

91.7 (a) Civil Aircraft Airworthiness:
Exemption will allows the owner/operator to determine the airworthiness of the UA.

91.119 (b) and (c) Minimum safe altitudes:
Exemption will allow the UA to fly closer to structures and persons in certain situations.

91.121 Altimeter settings:
Exemption will allow the UA to use non-standard altimeter settings for the purpose of altitude reporting.

91.151 (a)(1) Fuel requirements for flights in VFR conditions:
Exemption allows for the use of reserve battery power rather than reserve gas.

91.405 (a) Maintenance required:
Exemption allows for the UA to be maintained by the owner/operator.

91.407 (a)(1) Operation after maintenance:
Exemption allows for the owner/operator to return the UA to flight service after maintenance.

91.409 (a)(1) and (2) Inspections:
Exemption allows for the owner/operator to perform all inspections.

91.417 (a)(iii) and (b) Maintenance records:
Exemption allows for the owner/operator to maintain and authorize all maintenance records.

VII. Additional Information

A. P2 Multirotor Pilot Operating Handbook:

The POH includes:
- XAircraft SuperX Flight Control System User Manual V1.9
- XAirfract SuperX OSD Module User Manual
- Futaba 8FG Instruction Manual
- KDE Direct XF UAS ESC Series Instruction Manual
- Gaui 950Q Multirotor Frame Assembly Instruction Manual
- Aligh G3-5D 3 Axis Gimbal Instruction Manual

VIII. No flight privileges outside the USA are sought.

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