



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

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

September 16, 2015

Exemption No. 12881
Regulatory Docket No. FAA-2015-2293

Mr. Andrew Maroudas
6233 Osprey Terrace
Coconut Creek, FL 33073

Dear Mr. Maroudas:

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

By letter dated May 27, 2015, you petitioned the Federal Aviation Administration (FAA) for an exemption. You requested to operate an unmanned aircraft system (UAS) to conduct 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 DJI Phantom 2 Vision.

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 collection¹. 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 Astraesus 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. Andrew Maroudas 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. Andrew Maroudas is hereafter referred to as the operator.

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.

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 Vision 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.nts.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 September 30, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/

John S. Duncan

Director, Flight Standards Service

Enclosures

Andrew Maroudas
6233 Osprey Ter, Coconut Creek, FL 33073

954-531-0591
amaroudas@hotmail.com

Andrew Maroudas - Section 333 Exemption Petition

May 27, 2015

U.S. Department of Transportation, Docket Operations
West Building Ground Floor, Room W12-140
1200 New Jersey Ave., SE
Washington, DC 20590-0001

Re: Exemption Request under Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations

Dear Sir or Madam:

I, Andrew Maroudas, am writing pursuant to the FAA Modernization and Reform Act of 2012 and 14 C.F.R. Part 11 to request an exemption of the above referenced FARs to allow operation of a small ultra-lightweight unmanned aircraft system (UAS) for commercial purposes in the National Airspace System (NAS) regulated by the FAA.

The applicant, Andrew Maroudas, is a licensed FAA Private Pilot (License Number 465894202).

As described more fully, the granting of this exemption request would permit the operation of a small UAS for the main purpose of providing low altitude aerial photography/videography in the South Florida area to the general public, government, educational groups and to individuals for Real Estate and personal uses. Additionally, we request that we be allowed to use our system to benefit governmental first responders nearby who might require assistance, including fire fighters, rescue personnel, law enforcement agencies, and federal agencies, et al., while remaining subject to all limitations cited in this application as we do so.

Additionally, granting this exemption request would fulfill the Secretary of Transportation's FAA Administrator's responsibilities to "... establish requirements for the safe operation of such aircraft systems in the National Airspace System" under Section 333(c) of the Reform Act.

Andrew Maroudas
6233 Osprey Ter, Coconut Creek, FL 33073

954-531-0591
amaroudas@hotmail.com

I. Contact Information:

Andrew Maroudas
6233 Osprey Ter
Coconut Creek, FL 33073
954-531-0591
amaroudas@hotmail.com

II. Regulations from which exemption is requested:

14 CFR Part 21, 14 CFR 45.23(b), 14 CFR 61.113(a); 61.113(b), 14 CFR 91.7(a); 91.9(b)(2); 91.103(b), 14 CFR 91.109; 91.119; 91.121, 14 CFR 91.151(a); 91.203(a) & (b), 14 CFR Subpart E (91.405(a); 91.407(a)(1), 14 CFR Subpart E (91.409(a)(2); 91.417(a) & (b)), and FAA Policy 8900.227 Paragraph 16(c)(4) and Paragraph 16(e)(1) (See addendum)

III. Extent of Relief and Reason:

I am asking for the FAA to grant the amount of relief from each regulation as is deemed appropriate for the safe operation of the small UAS and inclusion into the NAS.

The reason for the exemption request is because it is currently unlawful to fly UAS's in the NAS for commercial purposes thereby denying the general public the advantages associated with their use.

IV. Benefit to the Public as a Whole:

Aerial photography/videography has been around for a long time through manned fixed wing aircraft and helicopters. Manned fixed wing aircraft and helicopters are expensive to operate and to hire. Many people and businesses cannot afford the high cost of manned aircraft photography/videography. UAS operations allow for people and businesses to be able to utilize aerial photography/videography under a much smaller budget. Low-level oblique photos and video from several angles are far more effective than ground based imagery for displaying the characteristics of large, complex properties with several buildings and large trees. The benefits of reduced cost and improved quality of presentation from the U A will be valuable to and benefit many buyers and sellers of real property.

Congress has already proclaimed that it is in the public's interest to integrate commercially flown UAS's into the national airspace system, hence the passing of the Reform Act. The lightweight UAS is battery powered and creates no emissions that can harm the environment. The consequences of an ultra-light weight UAS crashing is far less than a full size helicopter or fixed wing aircraft; which are heavy, contain combustible fuel and can cause catastrophic devastation to the public.

V. This Exemption would increase safety due to the fact that all Flight Safety and Operational requirements as designated by the FAA will be complied with. The UA, powered by batteries, is smaller, lighter, requires no fuel, and is more maneuverable than larger aircraft running on combustible fuel. It operates at lower altitudes with no people on board, and will thereby reduce current risk levels and thereby enhance safety and diminish the likelihood of death or serious bodily injury. With a small payload and maximum flight time of only 25 minutes, with maximum air speed of 30 knots, this offers little or no risk to national security.

1) Operations will be conducted using DJI Phantom 2 VISION.

- A lightweight (maximum gross weight of 3 pounds), electric motors powered by batteries and operated with four rotors in the form of a quad-copter that takes off and lands vertically, manufactured by DJI.
- An on-board flight computer with GPS navigation and location ability that receives signals for flight controls from a ground-based transmitter/controller;
- A stock DJI digital camera capable of capturing imagery in the form of full color, high definition still photos and video;
- A stock DJI on-board telemetry system that delivers flight data from the on-board flight computer to the stock DJI on-board radio transmitter including altitude AGL, airspeed, compass direction of flight and direction back to its launch site;
- A stock DJI on-board radio transmitter that transmits live video from the on-board camera plus all the flight data from the telemetry system described above;

2) The UA may not be flown at an indicated airspeed exceeding 30 knots.

3) The UA must be operated at an altitude of no more than 300 feet above ground level (AGL), as indicated by the procedures specified in the operating documents. All altitudes reported to ATC must be in feet AGL.

4) The UA must be operated within visual line of sight (VLOS) of the Pilot In Command (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.

5) All operations must utilize a visual observer (VO). The UA must be operated within the visual line of sight (VLOS) of the 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. 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 functions prescribed in the operating documents.

- 6) The operating documents and the grant of exemption must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in the 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 upon request. The operator must also present updated and revised documents if he petitions for extension or amendment to the grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted the exemption, then the operator must petition for amendment to its grant of exemption.
- 7) Prior to each flight, the PIC must inspect the UAS to ensure it is in a condition for safe flight. If the inspection reveals a condition that affects the safe operation of the UAS, the UAS is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight. The Ground Control Station must be included in the preflight inspection. All maintenance and alterations must be properly documented in the aircraft records.
- 8) Any UAS 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. The PIC who conducts the functional test flight must make an entry in the aircraft records.
- 9) The pre-flight inspection section in the operating documents must account for all discrepancies, i.e. inoperable components, items, or equipment, not already covered in the relevant sections of the operating documents.
- 10) The operator must follow the UAS manufacturer's aircraft/component, maintenance, overhaul, replacement, inspection, and life limit requirements.
- 11) The operator must carry out its maintenance, inspections, and record keeping requirements, in accordance with the operating documents. Maintenance, inspection, and alterations must be noted in the aircraft records, including total flight hours, description of work accomplished, and the signature of the authorized person returning the UAS to service.
- 12) Each UAS operated under the exemption must comply with all manufacturer Safety Bulletins.
- 13) The authorized person must make an entry in the aircraft record of the corrective action taken against discrepancies discovered between inspections.
- 14) UAS operations must be conducted by a PIC possessing at least a private pilot certificate and at least a current third-class medical certificate. 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.

15) Prior to operations conducted for the purpose of aerial photography/videography and augmenting real estate listing videos (or similar operations), the PIC must have accumulated and logged, in a manner consistent with 14 CFR 61.51(b), a minimum of 25 hours of total time as a UAS rotorcraft pilot including at least 10 hours logged as a UAS pilot with a multi-rotor UAS. Prior documented flight experience that was obtained in compliance with applicable regulations may satisfy this requirement. Training, proficiency, and experience-building flights can also be conducted under the grant of exemption to accomplish the required flight time. However, said training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights the PIC is required to operate the UA with appropriate distances in accordance with 14 CFR 91.119.

16) Prior to operations conducted for the purpose of aerial photography/videography and augmenting real estate listing videos (or similar operations), the PIC must have accumulated and logged, in a manner consistent with 14 CFR 61.51(b), a minimum of 5 hours as UAS pilot operating the make and model of the UAS to be used in operations under the exemption; 5 hours make and model time may be included in the 10 hours of multi-rotor time prescribed above. The PIC must accomplish 3 take-offs and landings in the preceding 90 days (for currency purposes). Training, proficiency, experience-building, and take-off and landing currency flights can be conducted under this grant of exemption to accomplish the required flight time and 90 day currency. However, said training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights the PIC is required to operate the UA with appropriate distances in accordance with 14 CFR 91.119.

17) The operator may not permit the PIC to operate the UAS for the purpose of aerial photography/videography and augmenting real estate listing videos (or similar operations), unless the PIC has demonstrated and logged in a manner consistent with 14 CFR 61.51(b), 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 people, vessels, vehicles and structures.

18} 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}.

19) The UA may not operate within 5 nautical miles of an airport reference point as denoted on a current FAA-published aeronautical chart.

20) 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.

21) If the UA loses communications or loses its GPS signal, it must return to a pre-determined location within the planned operating area and land or be recovered in accordance with the operating documents.

22) The PIC must abort the flight in the event of unpredicted obstacles or emergencies in accordance with the operating documents.

23) The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough power to fly at normal cruising speed to the intended landing point and land the UA with 30% battery power remaining.

24) The operator must obtain an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA) prior to conducting any operations under this grant of exemption. This COA will also require the operator to request a Notice to Airman (NOT AM) not more than 72 hours in advance, but not less than 48 hours prior to the operation.

25) 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.

26) Before conducting operations, the radio frequency spectrum used for operation and control of the UA must comply with the Federal Communications Commission (FCC) or other appropriate government oversight agency requirements.

27) The 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 UAS is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

28) The UA must remain clear and yield the right of way to all manned aviation operations and activities at all times.

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

30) The UA may not be operated over congested or densely populated areas.

31) 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 and/or; b. The aircraft is operated near vessels, vehicles or structures where the owner/controller of such vessels, vehicles or structures has granted permission 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, and; c. Operations nearer to the PIC, VO, operator trainees or essential persons do not present an undue hazard to those persons per § 91.119(a).

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

Andrew Maroudas
6233 Osprey Ter, Coconut Creek, FL 33073

954-531-0591
amaroudas@hotmail.com

33) 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.nts.gov.

Unless otherwise specified in the 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.

I am prepared to modify or amend any part of this request to satisfy the need for an equivalent level of safety. Please contact me at any time if you require additional information or clarification. I look forward to working with your office.

Thank you,

Andrew Maroudas
6233 Osprey Ter
Coconut Creek, FL 33073
954-531-0591
amaroudas@hotmail.com

ADDENDUM

EXEMPTION REQUESTS AND EQUIVALENT LEVEL OF SAFETY

I request an exemption from the following regulations as well as any additional regulations that may technically apply to the operation of the UAS System:

14 CFR Part 21, Subpart H: Airworthiness Certificates

21.191 Experimental certificates.

Experimental certificates are issued for the following purposes:

- (a) Research and development. Testing new aircraft design concepts, new aircraft equipment, new aircraft installations, new aircraft operating techniques, or new uses for aircraft.
- (b) Showing compliance with regulations. Conducting flight tests and other operations to show compliance with the airworthiness regulations including flights to show compliance for issuance of type and supplemental type certificates, flights to substantiate major design changes, and flights to show compliance with the function and reliability requirements of the regulations.

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 61.113(a) and (b) prescribes that

(a) no person who holds a private pilot certificate may act as a pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as pilot in command of an aircraft.

(b) a private pilot may, for compensation or hire, act as pilot in command of an aircraft in connection with any business or employment if:

(1) The flight is only incidental to that business or employment; and

(2) The aircraft does not carry passengers or property for compensation or hire.

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

Section 91.7(b) prescribes that the pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight and that the PIC shall discontinue the flight when un-airworthy mechanical, electrical, or structural conditions occur.

Section 91.9(b)(2) prohibits operation of 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(b) prescribes that a pilot shall for any flight, become familiar with runway lengths at airports of intended use, and takeoff and landing distance information.

Section 91.109(a) 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 requires, in pertinent part, each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set available within 100 NM of the aircraft "... to the elevation of the departure airport or an appropriate altimeter setting available before departure."

Section 91.151(a) prescribes that no person may begin a flight in an airplane under VFR conditions unless 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.

Section 91.203(a) prohibits, in pertinent part, any person from operating 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.

At a maximum gross weight of 5.3 pounds, the UA is too small to carry documentation, does not have an entrance, and is not capable of carrying passengers or crew. To obtain an equivalent level of safety and meet the intent of 91.203, we propose that documents deemed appropriate for this aircraft by the FAA will be co-located with the crew at the ground control station and available for inspection upon request.

Section 91.405(a) requires, in pertinent part, that an aircraft operator or owner shall have that aircraft inspected as prescribed in subpart E of the same part and shall, between required inspections, except as provided in paragraph (c) of the same section, have discrepancies repaired as prescribed in part 43 of the chapter.

Section 91.407(a)(1) prohibits, in pertinent part, any person from operating an aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless it has been approved for return to service by a person authorized under § 43.7 of the same chapter.

Section 91.409(a)(2) prescribes, in pertinent part, that no person may operate an aircraft unless, within the preceding 12 calendar months, it has had an inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

Section 91.417(a) and (b) prescribes, in pertinent part, that

(a) Each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:

(1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include

(i) A description (or reference to data acceptable to the Administrator) of the work performed; and

(ii) The date of completion of the work performed; and

(iii) The signature, and certificate number of the person approving the aircraft for return to service.

(2) Records containing the following information:

(i) The total time in service of the airframe, each engine, each propeller, and each rotor.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.

(iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revision date. If the AD or safety directive involves recurring action, the time and date when the next action is required.

(vi) Copies of the forms prescribed by § 43.9(d) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

(b) The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator under § 43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service.

Concluding, the Phantom 2 Vision aircraft (UA) will not carry persons or property, will not carry fuel, and will only fly under strict operational requirements. Combined with the UA's light weight, being constructed primarily of carbon fiber and plastic, we propose that the UA will be at least as safe, if not safer, than a conventionally certificated aircraft performing the same mission.

If an airworthiness certificate is not appropriate for this application, then we request an exemption of 14 CFR Part 21, Subpart H, and the requirement for an airworthiness certificate in general, citing the equivalent level of safety.

The UA is battery operated, and the maximum duration of flight from a single battery charge is 25 minutes with a 20% reserve. Since the aircraft will never fly more than 3/4 NM from the point of intended landing, a full battery charge at launch will ensure that we meet the reserve energy requirement of this paragraph. We request an exemption to the word "fuel" and ask for an equivalent interpretation with the word "energy".

It is our intention that the PIC perform maintenance and inspection of the aircraft and "be authorized to approve the aircraft for return to service." The PIC will ensure that the aircraft is in an airworthy condition prior to every flight and in addition conduct detailed inspections after every two hours of flight.

Maintenance performed by the PIC is limited to repairing small cracks, replacing a propeller, checking electrical connections and updating software and firmware for the on-board computer. All other maintenance will be performed by the manufacturer or designated repair facility. The PIC will document work performed in accordance with 91.417. We feel that due to the size, construction, and simplicity of the aircraft, the PIC can ensure an equivalent level of safety.

The UA maximum gross weight is 3.0 pounds and the PIC is not on board. Both the PIC and the VO are required to be in VLOS. Given the unlikely event that both the PIC and VO become medically incapacitated while the aircraft is in flight, the UA will return autonomously to the site of launching and land without crew intervention.

Therefore, requiring the PIC and VO to meet the same medical requirements as a commercial pilot carrying passengers in a large aircraft is an unnecessary burden.

The UA will always fly below 400 feet AGL and will not need to maintain cruising altitudes in order to prevent conflict with other aircraft. An Above Ground Level altimeter measurement above takeoff point is transmitted via radio from UA on-board computer to a display screen held by the PIC, providing a constant updated AGL readout.

We propose that the minimum medical requirements for the PIC and VO to be in possession of a valid state issued driver's license. A licensed driver is medically qualified to operate a much larger vehicle.