



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

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

May 8, 2015

Exemption No. 11533  
Regulatory Docket No. FAA-2015-0462

Mr. David Akers  
President  
AviTronics Integrated Solutions, LLC  
P.O. Box 1644  
Rockwall, TX 75087

Dear Mr. Akers:

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 February 20, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of AviTronics Integrated Solutions, LLC (hereinafter petitioner or operator) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct aerial photography and digital cloud print surveys.

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 Vision and 3DRobotics IRIS.

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

## Conditions and Limitations

In this grant of exemption, AviTronics Integrated 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 Vision and 3DRobotics IRIS 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 5 minutes or with the reserve power recommended by the manufacturer if greater.
21. Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA). All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder may apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the attached COA.

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N-Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.
23. Documents used by the operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.
24. The UA must remain clear and give way to all manned aviation operations and activities at all times.
25. The UAS may not be operated by the PIC from any moving device or vehicle.
26. All Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
  - a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and
  - b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.

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

27. All operations shall be conducted over private or controlled-access property with permission from the property owner/controller or authorized representative. Permission from property owner/controller or authorized representative will be obtained for each flight to be conducted.
28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS-80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: [www.nts.gov](http://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 May 31, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/

John S. Duncan

Director, Flight Standards Service



February 20, 2015

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

Re: Exemption Request Section 333 of the FAA Reform Act.

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the "Reform Act"), AviTronics Integrated Solutions, LLC ("AviTronics"), the operator, David A. Akers (the applicant), planned operator of Unmanned Aircraft Systems (UASs) equipped to conduct aerial photography and digital point cloud surveys for various industries hereby applies for an exemption from Federal Aviation Regulations (FARs) to allow commercial operation of our UASs, so long as such operations are conducted within and under the conditions outlined herein or as may be established by the FAA as required by Section 333.

As described more fully in Appendix A, the requested exemption would permit the operation of UASs by the operator for commercial use that would provide the following benefits:

1. Operations would be performed in an area of operation limited in size suitable to the specific use, in advance of flight.
2. The flight would be planned in advance to minimize hazards to persons and property in the air and on the ground.
3. The operator would reasonably limit or control access to provide safety to those not involved in the operation.
4. Operation of a UAS would provide significant safety, environmental and other enhancements not possible by larger sized aircraft.
5. An FAA licensed airman with a Commercial Pilot Certificate would operate the UAS or directly supervise the operation.
6. Provide a beneficial and currently unavailable service to government organizations and the general public that would serve the public interest.

Approval of this exemption would thereby enhance safety and fulfill the Secretary of Transportation's (the FAA Administrators) responsibilities to "...establish requirements for the safe operation of such aircraft systems in the national airspace system. "Section 333(c) of the Reform Act.

It is possible to operate an UAS so to not create a hazard to users of the National Airspace System (NAS), the public or pose a threat to national security if done so safely and responsibly. The applicant has demonstrated their willingness to act safely and responsibly by not engaging in commercial UAS operations. The applicant has worked within FAA guidelines to obtain a legal authorization to conduct commercial operations. Additionally, the fact that the applicant currently holds a FAA Commercial Pilot Certificate demonstrates that the applicant has a high regard to safe operations, as well as a necessary high-level understanding of the NAS and FARs. The experience of a FAA certificate serves to add significantly to the level of safety in any operation performed by the applicant or the applicant's employees.

#### AIRCRAFT AND EQUIVALENT LEVEL OF SAFETY

The applicant proposes that the exemption requested herein apply to civil aircraft that have the characteristics of UAS and that operate with the limitations listed herein. These limitations provide for at least an equivalent or higher level of safety to operations under the current regulatory structure as the proposed operations represent a safety enhancement to the already safe aerial commercial photography and survey operations conducted with conventional aircraft.

The UASs planned to be operated are the DJI Phantom 2 Vision, DJI Phantom 2 Vision Plus, and the 3D Robotics IRIS Plus rotorcraft. Each unmanned aircraft (UA) is equipped with four rotors that are driven by electric motors, powered by batteries, and weigh less than 4 pounds, including payload. The UA would have a maximum airspeed of 30 knots. The principal construction material of these UA is plastic. Operations will be performed by a qualified UAS Pilot in Command (PIC), as outlined below, to insure that the UAS will "not create a hazard to users of the national airspace system or the public." Given the small size of the UAS involved and the pre-planned environment within which they will operate, the applicant believes that these operations fall squarely within that zone of safety (an equivalent level of safety) in which Congress envisioned that the FAA must, by exemption, allow commercial operations of UAS to commence immediately. Also, operation in a researched (to include applicable NOTAMs), pre-defined area will prevent the possibility of a national security issue. The operation of UASs by knowledgeable professionals with experience in the NAS will serve to enhance safety, add to the public benefit and reduce environmental impacts related to current methods of aerial photography and survey.

These limitations and conditions to which the operator, or its employees, acting as an UAS PIC, agrees to be bound when conducting commercial operations under an FAA issued exemption:

1. Safety will be the first and foremost consideration in any UAS operation.



2. The UAS pilot will be an FAA licensed airman with at least a Commercial Pilot Certificate or the UAS pilot will be directly supervised by an FAA licensed airman with at least a Commercial Pilot Certificate.
3. The UAS Pilot, and observer will hold at least a Second Class Medical Certificate.
4. The UAS FAA licensed airman will be considered PIC, whether flying or supervising, and will be responsible for safe operation of the flight.
5. Flights will be conducted within line of sight of the PIC and an observer.
6. Flights will be conducted in Class G airspace whenever possible. If an operation in another airspace is required, the relevant controlling agency will be notified at least 24 hours prior to the operation and, if required, any necessary permission obtained.
7. Flights will be conducted under visibility and cloud clearance requirements equivalent to Visual Flight Rules (VFR).
8. The UAS will at all times give way to any aircraft, object, or persons.
9. Minimum crew for each operation will consist of the UAS PIC and an observer. The observer and PIC will at all times maintain visual line of site to the UA, and be able to communicate by voice.
10. Prior to a UAS flight, an area of operation will be established. This area of operation will include a defined lateral and vertical area, where the UAS will operate (Appendix J). Safety procedures will be established for persons, property and applicable airspace within the area of operation.
11. Flight planning will include flight completion with at least 20% battery power remaining as measured by the UAS or appropriate timing.
12. The UAS will utilize GPS navigation, failsafe, return-to-home (RTH) and/or flight abort safety features.
13. A briefing will be conducted in regard to the planned UAS operations prior to operation at each new location (Appendix I through K). All personnel who will be performing duties within the boundaries of the area of operation will be present for this briefing.
14. All required permissions and permits will be obtained from appropriate state, county or city jurisdictions, including local law enforcement, fire, or other appropriate governmental agencies.
15. Written, to include electronic, and/or oral permission from the relevant property owners will be obtained prior to an operation.

16. The UAS pilot will be trained in advance for the safe operation of the UAS to be operated. This will include operation of the UAS both in normal and emergency modes of operation as applicable, and will include familiarization with the operation manual (or similar) if published by the UAS manufacturer. Training will also include types of maneuvers to be performed and the safe operation in relation to persons, property and applicable airspace.

Attached Appendix B, please find a letter from Technical Applications & Consulting, LLC requesting a UAS operation in Orange, Texas that will document a current landfill project. This operation serves as an excellent example of the benefits of using a UAS. It represents an enhancement in safety as well as benefiting the public interest. It is respectfully requested that the FAA grant an exemption as soon as possible to enable TAC's project to be documented within their time constraints.

It is the applicant's belief that the size, speed, operating environment, limitations, and level of applicant's experience in the NAS outlined provides an "equivalent level of safety" or better when operating a UAS for the public interest as outlined in Section 333 in the FAA Modernization and Reform Act of 2012. It is requested that the FAA issue an exemption to permit safe, legal, commercial UAS operation by the applicant as soon as possible.

Sincerely,



David Akers, President  
AviTronics Integrated Solutions, LLC  
P.O. Box 1644  
Rockwall, TX 75087  
972-708-1535

Appendix A	Exemption Requests and Equivalent Level of Safety
Appendix B	Letter from Technical Applications & Consulting
Appendix C	DJI Phantom 2 Vision User Manual
Appendix D	DJI Phantom 2 Vision Plus User Manual
Appendix E	3D Robotics IRIS Plus Operation Manual
Appendix F	3D Robotics IRIS Plus Flight Checklist
Appendix G	3D Robotics Gimbal User Guide
Appendix H	AviTronics Flight Log Form
Appendix I	AviTronics Project Risk Assessment Form
Appendix J	AviTronics Project Concept Sheet
Appendix K	AviTronics Project Brief/Debrief Form