



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

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

July 27, 2015

Exemption No. 12159
Regulatory Docket No. FAA-2015-1683

Mr. David Hilton
Ms. Denise Hilton
Eye-in-the-Sky Aerial Photography LLC
5264 Emerson Road
Brooksville, FL 34601

Dear Mr. Hilton and Ms. Hilton:

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

By letter dated April 29, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Eye-in-the-Sky Aerial Photography LLC (hereinafter petitioner or operator) for an exemption. The petitioner 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 Yuneec Typhoon 500Q+.

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 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 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, Eye-in-the-Sky Aerial Photography 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.

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.

Conditions and Limitations

In this grant of exemption, Eye-in-the-Sky Aerial Photography 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 Yuneec Typhoon 500Q+ 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 July 31, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/

John S. Duncan

Director, Flight Standards Service

Enclosures

**IN THE MATTER OF THE PETITION FOR EXEMPTION OF:
EYE-IN-THE-SKY AERIAL PHOTOGRAPHY LLC
FOR AN EXEMPTION SEEKING RELIEF FROM THE REQUIREMENTS OF
TITLE 14 OF THE CODE OF FEDERAL REGULATIONS
SECTIONS 61.113 (a) and (b); 91.7 (a); 91.119 (c); 91.121; 91.151(a)
91.405 (a); 91.407 (a) (1); 91.409 (a) (1) and (2); 91.417 (a) and (b)**

Submitted on 04/29/2015

By:

David T. and Denise G. Hilton

Eye-in-the-Sky Aerial Photography LLC

(352) 796-9633

PETITION FOR RELIEF OF REQUIREMENTN OF TITLE 14 OF THE CODE OF FEDERAL REGULATIONS, SPECIFICALLY AS AUTHORIZED UNDER THE F.A.A. MODERNIZATION AND REFORM ACT OF 2012, SECTION 333; SPECIAL RULES FOR CERTAIN UNMANNED AIRCRAFT SYSTEMS.

David T. Hilton and Denise G. Hilton, DBA as Eye-in-the-Sky Aerial Photography LLC

Eye-in-the-Sky Aerial Photography LLC seeks exemptions from Title 14 of the Code of Federal Regulations: 61.113 (a) and (b); 91.7 (a); 91.119; 91.121; 91.151.151 (a); 91.405 (a); 91.407 (a) (1); 91.409 (a) (1) and (2); 91.417 (a) and (b), in order to operate a **Yuneec Typhoon 500Q+ UAS**. This exemption will allow Eye-in-the-Sky Aerial Photography LLC to operate an unmanned aerial vehicle commercially for the purposes of conducting aerial video and still photography in the Real Estate, Insurance and Construction markets of Florida and Georgia. These still images and videos will provide both commercial and community awareness and understanding of aerial imaging systems.

Eye-in-the-Sky Aerial Photography LLC is a real estate, insurance and survey aerial photography company producing high quality results for clients who want to display images both for real estate and insurance documentation and survey purposes throughout the southern Florida and Georgia markets. Eye-in-the-Sky Aerial Photography LLC will be using a Yuneec Typhoon 500 Q+ quad copter to commercially capture video stills and film while working on private and public properties for the purpose of aerial location services. Eye-in-the-Sky Aerial Photography LLC will employ both a licensed pilot and utilize a visual observer to maintain a visual line-of-sight between the quad copter and the pilot UAV operator, who will hold, at minimum, a current private pilot's license.

THE YUNEEC TYPHOON 500 Q+

The Yuneec Typhoon 500 Q+ is an electric powered quad copter weighing less than three pounds and is operated via a handheld remote that features "Return to Home" and "Follow Me" commands. The Return to Home feature can be triggered manually and the UAV unit works off of a 2.4 GHz downlink for remote control. The video function works on 5.8 GHz frequency video. The default altitude setting for the Typhoon 500 Q+ is 400 feet AGL. The camera system is a CG 02 and is operated from the handheld remote control. Both units are powered by a single battery giving the Typhoon 500 Q+ approximately 25 minutes of flight time.

BASIS FOR PETITION

Eye-in-the-Sky Aerial Photography LLC, pursuant to the provisions of the Federal Aviation Regulations (14 C.F.R. SS 11.61) and the F.A.A. Modernization and Reformed Act of 2012, Section 333, Special Rules for Certain Unmanned Aircraft Systems, hereby petitions the Administrator to operate the TYPHOON 500 Q+ UAS within the National Airspace System, and for an exemption from the requirements of 14 CFR SS 61.113 (a) and (b), 91.7 (a), 91.119, 91.121, 91.151 (a), 91.405 (a), 91.407 (a) (1), 91.409 (a) (1) and (2), 91.417 (a) and (b).

NAME AND ADDRESS OF THE PETITIONER

David T. Hilton / Denise G. Hilton
Eye-in-the-Sky Aerial Photography LLC
5264 Emerson Rd.
Brooksville, Florida 34601
dthilton@hotmail.com

EYE-IN-THE-SKY AERIAL PHOTOGRAPHY LLC Requests Relief from the Following Sections of 14 C.F.R.

- Sections 61.113, entitled *Private pilot privileges and limitations: Pilot in Command*, Subsections (a) and (b).
- Section 91.7, entitled *Civil airworthiness* subsection (a).
- Section 91.119 entitled *Minimum Safe Altitudes, General*.
- Section 91.121, entitled *Altimeter Settings*.
- Section 91.151 entitled *Fuel requirements for flight in VFR conditions*.
- Section 91.405, entitled *Maintenance required*.
- Section 91.407 (a) (1), entitled *Operation after maintenance, preventative maintenance, rebuilding, or alteration*.
- Section 91.409 entitled *Inspections*.
- Section 91 the .417 entitled *Maintenance Records*.

Extent of relief that Eye-in-the-Sky Aerial Photography LLC seeks regarding section 61.113 (a) and (b) *Private pilot privileges and limitations: Pilot in Command*, Subsections (a) and (b) prescribed the following, in part:

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

Relief from section 61.113 (a) and (b) is requested to allow a PIC holding a current private pilot's certificate to operate the Typhoon 500 Q+. The flight would be complemented by a visual observer who will, along with the pilot, maintain visual line of sight with the Typhoon 500 Q+ at all times. All operations will be conducted as per Eye-in-the-Sky Aerial Photography LLC's business related operations. The Typhoon 500 Q+ is not able to carry passengers.

Extent of relief that Eye-in-the-Sky Aerial Photography LLC seeks in regards to section 91.7(a), *Civil Airworthiness*; Relief from section 91.7(a), is requested to allow Eye-in-the-Sky Aerial Photography LLC to determine the air worthiness of the Typhoon 500 Q+.

Extent of relief that Eye-in-the-Sky Aerial Photography LLC seeks in regards to section 91.119, *Minimum Safe Altitudes; General*. Relief from 91.119 is requested to allow operations of the Typhoon 500 Q+ at altitudes not to exceed 400 feet AGL, over private property or at a distance at or greater than five nautical miles from the nearest airport as depicted on current aeronautical charts.

Eye-in-the-Sky Aerial Photography LLC also wishes to be granted exemptions to operate at an altitude not more than 50 feet AGL or below tree level between one and five nautical miles from the nearest airport as depicted on current aeronautical charts.

Extent of relief that Eye-in-the-Sky Aerial Photography LLC seeks from 91.121, (a) , *Altimeter Settings*

Extent of relief from 91.121 is requested because the Typhoon 500 Q+ utilizes an Electronic GPS with a barometric sensor.

Extent of relief that Eye-in-the-Sky Aerial Photography LLC seeks in regard to section 91.151(a), *Fuel Requirements for Flight in VFR Conditions*.

Relief from 91.151(b), is requested to the extent that allows Eye-in-the-Sky Aerial Photography LLC to operate the Typhoon 500 Q+ up to a point that there is enough power to fly at normal cruising speed to the landing point and land the vehicle with 25% battery power remaining. Note: a low battery alarm on the operating console for the Typhoon 500 Q+ is equipped with a shaker mechanism to warn the pilot of a low battery condition.

Extent of relief that Eye-in-the-Sky Aerial Photography LLC seeks in regards to sections 91.405(a), 91.407(a)(1), 91.409 point(a)(1) and (a)(2), 91.417 (a) and (b). *These are all associated with an airworthiness certificate.* There are currently no airworthiness certificates for small UAVs.

BENEFITS GAINED VIA RELIEF FOR EYE-IN-THE-SKY AERIAL PHOTOGRAPHY LLC from the above stated Federal Regulations:

- A. Use of the small UAV will allow for quicker and timelier aerial mapping, aerial surveying and aerial photography of properties as contracted for.
- B. Use of the small UAV will allow for more cost effective aerial mapping and surveying as the cost to operate a small UAV is fractional compared to the cost of operating a full size aircraft for aerial photography.
- C. Use of the small UAV will lesson the use of full size aircraft for some aerial photography missions and therefore give a somewhat greater safety ratio for the use of aerial photography.

REASONS WHY SAFETY WILL NOT BE AFFECTED BY GRANTING THESE REQUESTED EXEMPTIONS:

- Standard operating procedures prior to launch will include a preflight checklist of the vehicle and a visual inspection of area to be surveyed at ground level will be performed.
- Flight operations will be conducted by a two man crew consisting of the PIC and the Visual Observer. All operations will be conducted with a clear line of sight between the UAV and the team.
- Eye-in-the-Sky Aerial Photography LLC will only operate the UAV over private or public property with the permission of the property owner or the governing body and will maintain a safe distance from any structures, people or vehicles.

This petition is being made pursuant to the FAA Modernization and Reform Act of 2012, Section 333, which directs the Secretary of Transportation to determine if any UAS may safely operate in the National Airspace. The petitioner, David T. Hilton, currently holds a single engine land, private pilot's license and a third class medical and will be the primary PIC in command of the Typhoon 500 Q+.

Eye-in-the-Sky Aerial Photography LLC will operate all aircraft granted for use by the exemption as directed by the operating manual provided with the Typhoon 500 Q+ by the manufacturer.

IN CONCLUSION

As set forth previously Eye-in-the-Sky Aerial Photography LLC seeks an exemption pursuant to 14 CFR: 11.61 and Section 333 of the FAA Modernization and Reform Act of 2012, which will permit safe operation of Typhoon 500 Q+ UAS commercially within the insurance, real estate and construction markets. The Administrator will be assisting small business by granting this petition.

Respectfully submitted by Eye-in-the-Sky Aerial Photography LLC.

David T Hilton / Denise G. Hilton

Submitted on 04-29-2015

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