



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

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

August 14, 2015

Exemption No. 12456
Regulatory Docket No. FAA-2015-1813

Mr. George Tio
3012 Lexham Road
Louisville, KY 40220

Dear Mr. Tio:

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) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial photography, videography, and cinematography.

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 the DJI F550¹.

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

¹ The petitioner also proposed to operate the AeroSky H100. The FAA must conduct an assessment on this aircraft, which also includes a finding that the proposed UAS meet the conditions in Section 333 of Public Law 112-95. When the FAA completes its review, we will proceed accordingly and no further action will be required by the petitioner.

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 collection². The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA–2014–0352), 11109 to Clayco, Inc. (*see* Docket No. FAA–2014–0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA–2014–0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA–2014–0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

Having reviewed your reasons for requesting an exemption, I find that—

- They are similar in all material respects to relief previously requested in Grant of Exemption Nos. 11062, 11109, 11112, and 11213;
- The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, and 11213 also apply to the situation you present; and
- A grant of exemption is in the public interest.

Our Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, Mr. George Tio 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.

² 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, Mr. George Tio 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 F550 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 August 31, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/

John S. Duncan

Director, Flight Standards Service

Enclosures

George Tio
3012 Lexham Rd.
Louisville, KY 40220

4/29/2015

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

Re: Exemption Request Section 333 of the FAA Reform Act of the Federal Aviation Regulations from 14 C.F.R. Parts 21; 45.23(b); 61.113 (a) & (b); 61.133 (a); 91.7 (a); 91.9 (b)(2); 91.109(a); 91.119; 91.121; 91.151(a); 91.203(a) and (b); 91.319 (a)(1); 91.405 (a); 91.407 (a)(1); 91.409 (a)(2) and 91.417 (a) & (b)

Dear Sir or Madam,

I, George Tio, am writing pursuant to the FAA Modernization and Reform Act of 2012 and the procedures contained within 14 C.F.R. 11, to request that I, George Tio, an owner and operator of small unmanned aircraft, be exempted from the Federal Aviation Regulations ("FARs") listed below so that I, George Tio, may operate my small ultra light weight unmanned aircraft system ("UAS") commercially in airspace regulated by the Federal Aviation Administration ("FAA").

As described herein I, George Tio, am an experienced RC multi-copter enthusiast, in the state of Kentucky. I intend to use my AeroSky H100 and DJI F550 equipped with a GoPro camera for aerial photography/videography/cinematography. My small lightweight UAS is a cost effective and potentially safer option than utilizing the industry standard single engine plane or rotorcraft for aerial photography. If given the exemptions required to commercially fly a UAS, I will operate my UAS in a safe and effective manner while observing all guidelines set forth by the exemption.

Granting my, George Tio's, request comports with the Secretary of Transportation's (FAA Administrator's) responsibilities and authority to not only integrate UAS's into the national airspace system, but to "...establish requirements for the safe operation of such aircraft systems [UAS's] in the national airspace system" under Section 333(c) of the Reform Act specific to the use of UAS's for commercial photography. Further I, George Tio, will conduct my operations in compliance with the protocols described herein or as otherwise established by the FAA.

For the reasons stated below I, George Tio, respectfully request the grant of an exemption allowing me to operate ultra light weight, remote controlled UAS's for commercial aerial photography/videography/cinematography.

I. Contact Information:

George Tio
3012 Lexham Rd.
Louisville, KY 40220
gearbrain@gmail.com

II. The Specific Sections of Title 14 of the Code of Federal Regulations From Which George Tio Requests Exemption are:

14 C.F.R. 21
14 C.F.R. 45.23(b)
14 C.F.R. 61.113 (a) & (b)
14 C.F.R. 61.133 (a)
14 C.F.R. 91.7 (a)
14 C.F.R. 91.9 (b)(2)
14 C.F.R. 91.109(a)
14 C.F.R. 91.119
14 C.F.R. 91.121
14 C.F.R. 91.151(a)
14 C.F.R. 91.203(a) and (b)
14 C.F.R. 91.319 (a)(1)
14 C.F.R. 91.405 (a)
14 C.F.R. 91.407 (a)(1)
14 C.F.R. 91.409 (a)(2)
14 C.F.R. 91.417 (a) & (b)

III. The Extent of relief George Tio seeks and the Reason He Seeks Such Relief:

I, George Tio, submit this application in accordance with the Reform Act, 112 P.L. 95 §§ 331-334, seeking relief from any currently applicable FARs operating to prevent me, George Tio, contemplated commercial cinematic, academic and other flight operations within the national airspace system. The Reform Act in Section 332 provides for such integration of civil unmanned aircraft systems into our national airspace system as it is in the public's interest to do so. My, George Tio's, ultra light weight UAS meets the definition of "small unmanned aircraft" as defined in Section 331 and therefore the integration of my ultra light weight UAS is expressly contemplated by the Reform Act. I would like to operate my ultra light weight UAS prior to the time period by which the Reform Act requires the FAA to promulgate rules governing such craft. The Reform Act guides the Secretary in determining the types of UAS's that may operate safely in our national airspace system. Considerations include: The weight, size, speed and overall capabilities of the UAS's; Whether the UAS will be operated near airports or heavily populated areas; and, Whether the UAS will be operated by line of sight. 112 P.L. 95 § 333 (a). Each of these items reflect in favor of an exemption for me, George Tio. My UAS utilizes four (4) counter-rotating propellers for balance, control and stability. My UAS is equipped with GPS and auto return safety technology. Weighing less than five (5) pounds (far below the maximum 55 pound limit); including camera with gimbal.

I, George Tio, consider safety as foremost with each flight. My UAS is designed to hover in place via GPS and operate in less than a 20 knot wind. For safety, stability and fear of financial loss I will not fly in winds exceeding 10 KPH. Built in safety systems include a GPS mode that

allows my UAS to hover in place when radio controls are released. . When pilot communication is lost UAS is designed slowly descend to point of take off. I do not operate my UAS near airports, Hospitals nor Police heliports, and do not operate near areas where general public is within fifty to one hundred (50-100) yards depending on location, conditions and weather. Utilizing battery power rather than combustible fuels, flights generally last between three (3) to fifteen (15) minutes, with an altitude under one hundred fifty (150) feet AGL. I, George Tio, will operate my UAS with a fully charged battery and will ensure there is enough power to return to the original starting destination with 2 minutes reserve on a battery as tested lasting 22 minutes.

IV. How George Tio's Request Will Benefit the Public As A Whole:

Aerial videography is traditionally achieved using small single engine aircraft equipped with large cameras. In order to achieve a clear picture, the pilot is tasked with performing ground reference maneuvers at around 1000ft AGL. By utilizing a UAS for this function, pilots reduce the risk of damages to persons or property in the event of an in flight emergency. 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.

V. Reasons Why George Tio's Exemption Will Not Adversely Affect Safety Or How The Exemption Will Provide a Level of Safety At Least Equal To Existing Rule:

I, George Tio, believe that by allowing this exemption, it will create the beginning framework for other UAS enthusiasts to operate their aircraft in a much more regulated and safer environment. By creating laws and regulations for commercial UAS use, it will legitimize the industry and create a clear path for safer aviation. Additionally, my UAS is equipped with fail safe programming that allows it to fly and return safely if the pilot were to become incapacitated, or the connection was lost.

VI. A Summary The FAA May Publish in the Federal Register:

14 C.F.R. 21 and 14 C.F.R. 91: Airworthiness Certificates, Manuals and The Like.

14 C.F.R. 21, Subpart H, entitled Airworthiness Certificates, sets forth requirements for procurement of necessary airworthiness certificates in relation to FAR § 91.203(a)(1). The size, weight and enclosed operational area of my, George Tio's, UAS permits exemption from Part 21 because my UAS meets (and exceeds) an equivalent level of safety pursuant to Section 333 of the Reform Act. The FAA is authorized to exempt aircraft from the airworthiness certificate requirement under both the Act (49 U.S.C. § 44701 (f)) and Section 333 of the Reform Act. Both pieces of legislation permit the FAA to exempt UAS's from the airworthiness certificate requirement in consideration of the weight, size, speed, maneuverability and proximity to areas such as airports and dense populations. My, George Tio's current and projected UAS's meet or exceed each of the elements.

14 C.F.R. 91.7(a) prohibits the operation of an aircraft without an airworthiness certificate. As no such certificate will be applicable in the form contemplated by the FARs, this Regulation is inapplicable.

14 C.F.R. § 91.9 (b) (2) requires an aircraft flight manual in the aircraft. As there are no on board pilots or passengers, and given the size of the UAS's, this Regulation is inapplicable. An equivalent level of safety will be achieved by maintaining safety/flight manual delineating areas of where safety can be defined. The FAA has previously issued exemptions to this regulation in Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167, 10167A, 10602, 10700 and 32827.

14 C.F.R. § 91.109(a) & 91.319(a)(1): Flight Instruction

These regulations provide 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. UAS's are remotely piloted aircraft and by design and do not have fully functional dual controls. Flight control is accomplished through the use of a control box that communicates with the aircraft via radio communications. The FAA has approved exemptions for flight training without fully functional dual controls for a number of aircraft and for flight instruction in experimental aircraft. See Exemption Nos. 5778K & 9862A. Additionally, in the absence of previous training requirements, George Tio is a seasoned UAS pilot having flown hobby grade UAS's for a number of years without incident

14 C.F.R. § 91.121 regarding altimeter settings is inapplicable insofar as my UAS utilizes electronic global positioning systems with a barometric sensor.

14 C.F.R. § 91.203 (a) and (b) provides for the carrying of civil aircraft certifications and registrations. They are inapplicable for the same reasons described above. The equivalent level of safety will be achieved by maintaining any such required certifications and registrations by me, George Tio.

14 C.F.R. § 45.23: Marking of The Aircraft. Applicable Codes of Federal Regulation require aircraft to be marked according to certain specifications. My UAS are, by definition, unmanned. They therefore do not have a cabin, cockpit or pilot station on which to mark certain words or phrases. Further, two-inch lettering is difficult to place on such small aircraft with dimensions smaller than minimal lettering requirement. Regardless, I will mark its UASs in the largest possible lettering by placing the word "EXPERIMENTAL" on its fuselage as required by 14 C.F.R. §45.29 (f) so that I the pilot, or anyone assisting me as a spotter with the UAV will see the markings. The FAA has previously issued exemptions to this regulation through Exemptions Nos. 8738, 10167, 10167A and 10700.

14 C.F.R. § 61.113; 14 C.F.R. § 61.133: Private Pilot Privileges and Limitations; PIC; Commercial Pilot Privileges and Limitations:

Pursuant to 14 C.F.R. §§ 61.113 (a) & (b), private pilots are limited to noncommercial operations. Section 61.133(a) requires an individual with a commercial pilot's license to be pilot in command of an aircraft for compensation or hire. I, George Tio, can achieve an equivalent level of safety as achieved by current regulations because my UAS does not carry any pilots or passengers. The risks attendant to the operation of my UAS is far less than the risk levels inherent in the commercial activities outlined in 14 C.F.R. § 61, et seq. Thus, allowing me, George Tio, to operate my UAS meet and exceed current safety levels in relation to 14 C.F.R. §61.113 (a) & (b) and 14 C.F.R §61.133 (a) .

14 C.F.R. 91.119: Minimum Safe Altitudes.

14 C.F.R. § 91.119 prescribes safe altitudes for the operation of civil aircraft. It allows helicopters to be operated at lower altitudes in certain conditions. My UAS will never operate at an altitude greater than 200 AGL; safely below the standard of 400 AGL. I, George Tio, will however operate my UAS in safe areas away from public and traffic, providing a level of safety at least equivalent to or below those in relation to minimum safe altitudes. Given the size, weight, maneuverability and speed of my UAS, an equivalent or higher level of safety will be achieved.

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

This regulation prohibits an individual from beginning “a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed – (1) During the day, to fly after that for at least 30 minutes; or (2) At night, to fly after that for at least 45 minutes.” I, George Tio, will be operating a UAS utilizing battery power rather than combustible fuels, flights generally last between three (3) to fifteen (15) minutes, with an altitude under one hundred fifty (150) feet AGL. I, George Tio, will operate my UAS with a fully charged battery and will ensure there is enough power to return to the original starting destination with 2 minutes reserve on a battery as tested lasting 22 minutes.

14 C.F.R. 91.405 (a); 407 (a) (1); 409 (a) (2); 417(a) & (b): Maintenance Inspections.

Douglas Trudeau, Realtor®, Tucson AZ - Section 333 Exemption Petition

The above-cited Regulations require, amongst other things, aircraft owners and operators to “have [the] aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter. . . .”

These Regulations only apply to aircraft with an airworthiness certificate. They will not, therefore, apply to my, George Tio's, UAS.

14 C.F.R. 21 and 14 C.F.R. 91: Airworthiness Certificates, Manuals and The Like.

14 C.F.R. 21, Subpart H, entitled Airworthiness Certificates, sets forth for procurement of necessary airworthiness certificates in relation to FAR § 91.203(a)(1). The size, weight and enclosed operational area of my UAS permits exemption from Part 21 because my, George Tio's, UAS meets an equivalent level of safety pursuant to Section 333 of the Reform Act. The FAA is authorized to exempt aircraft from the airworthiness certificate requirement under both the Act (49 U.S.C. § 44701 (f)) and Section 333 of the Reform Act. Both pieces of legislation permit the FAA to exempt UAS's from the airworthiness certificate requirement in consideration of the weight, size, speed, maneuverability and proximity to areas such as airports and dense populations. My UAS meets or exceeds each of the elements. 14 C.F.R. 91.7(a) prohibits the

operation of an aircraft without an airworthiness certificate. As no such certificate will be applicable in the form contemplated by the FARs, this Regulation is inapplicable. 14 C.F.R. § 91.9 (b) (2) requires an aircraft flight manual in the aircraft. As there are no pilots or passengers, and given the size of the UAS's, this Regulation is inapplicable. An equivalent level of safety will be achieved by maintaining a manual. The FAA has previously issued exemptions to this regulation in Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167, maintenance program that involves regular software updates and curative measures for any damaged hardware. Therefore, an equivalent level of safety will be achieved.

In summary, George Tio seeks an exemption from the following Regulations:

14 C.F.R. 21, subpart H; 14 C.F.R. 45.23(b); 14 C.F.R. §§ 61.113 (a) & (b); 14 C.F.R. §§ 61.133 (a); 14 C.F.R. § 91.7 (a); 14 C.F.R. § 91.9 (b)(2); 14 C.F.R. § 91.109(a); 14 C.F.R. § 91.119; 14 C.F.R. § 91.121; 14 C.F.R. § 91.151(a); 14 C.F.R. §§ 91.203(a) and (b); 14 C.F.R. § 91.319 (a)(1); 14 C.F.R. § 91.405 (a); 14 C.F.R. § 91.407 (a)(1); 14 C.F.R. § 91.409 (a)(2) and, 14 C.F.R. §§ 91.417 (a) & (b) to commercially operate my, George Tio's, small unmanned vehicle/lightweight unmanned aircraft vehicle in thereby enhance safety. My UAS craft do not contain potentially

Thank you for your time and consideration in this matter.

Regards,
George Tio