



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

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

June 1, 2015

Exemption No. 11727  
Regulatory Docket No. FAA-2015-0772

Mr. Darren Barr  
Owner  
Andar Enterprises, Inc.  
1129 Lafayette Drive  
South Elgin, IL 60177

Dear Mr. Barr:

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

By letter dated March 23, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Andar Enterprises, Inc. (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial photography, videography, and surveying.

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 Q500.

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, Andar Enterprises, Inc. 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, Andar Enterprises, Inc. 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 Q500 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](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 June 30, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/

John S. Duncan

Director, Flight Standards Service



**U.S. Department of Transportation**

Docket Management System

1200 New Jersey Ave., SE

Washington, DC 20590

March 23, 2015

**Re: Petition of Andar Enterprises, Inc. for Exemption Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012**

Dear Sir and/or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 ("Reform Act") and 14 C.F.R. Part 11, Andar Enterprises, Inc., hereby applies for an exemption from Federal Aviation Regulations ("FARs") identified below, to allow commercial operations of small unmanned aerial vehicles (i.e., "small unmanned aircraft" or "sUAS").

This exemption is made based on the information in this petition, as well as the accompanying UAS Operations Manual. Petitioner submits the Operations Manual, Emergency Response Plan, and Airspace Risk Assessment as Confidential documents under 14 C.F.R. § 11.35(b), as the entire Operations Manual, Emergency Response Plan, and Airspace Risk Assessment contains confidential commercial and proprietary information that the Petitioner has not and will not share with others. The documents contain operating conditions and procedures that are not available to the public and are protected from release under the Freedom of Information Act, 5 U.S.C. § 552 et seq., and any other requirements established by the FAA pursuant to Section 333 of the FAA Reform Act.

For your convenience, the petition is organized as follows:

- I. Description of Petitioner**
- II. Relevant Statutory Authority**
- III. Qualifications for Approval Under Section 333 of the Reform Act**
- IV. Description of Proposed Operations**
- V. Regulations From Which Exemption is Requested**

- a. 14 C.F.R. Part 21, Subpart H-Airworthiness Certificates and 14 C.F.R. § 91.203
- b. 14 C.F.R. Part 27 Airworthiness Standards: Normal Category Rotorcraft
- c. 14 C.F.R. §§ 91.9(c), 45.23(b) and 45.27(a): Aircraft Marking and Identification Requirements
- d. 14 C.F.R. § 91.9(b)(2): Civil Aircraft Flight Manual in the Aircraft and 14 C.F.R. § 91.203(a) and (b): Carrying Civil Aircraft Certification and Registration
- e. 14 C.F.R. § 91.7(a): Civil Aircraft Airworthiness F. 14 C.F.R. § 91.103: Preflight Action
- f. 14 C.F.R. § 91.109(a): Flight Instruction
- g. 14 C.F.R. § 91.119: Minimum Safe Altitudes
- h. 14 C.F.R. § 91.121: Altimeter Settings
- i. 14 C.F.R. § 91.151(a): Fuel Requirements for Flight in VFR Conditions
- j. 14 C.F.R. § 91.405(a), 91.407(a)(1), 91.409(a)(2); 91.417(a) and (b): Maintenance Inspections
- V. Drug and Alcohol Program
- VI. Public Interest
- VII. Privacy
- VIII. Federal Registry Summary
- IX. Conclusion

## **I. DESCRIPTION OF PETITIONER**

Andar Enterprises, Inc. is a privately held company with 10 years experience in the videography/photography industry. The objective of Andar Enterprises Inc's. aerial video and photography operations is to be able to provide high quality, low cost imaging for a variety of commercial and public uses, specifically, the aerial survey industry.

Andar Enterprises, Inc is seeking exemption to operate the Yuneec Q500 system for compensation or hire within the NAS. The Yuneec Q500 will be operated by Darren Barr, owner, and there are currently no other owners or partners.

## **II. RELEVANT STATUTORY AUTHORITY**

This petition for exemption is submitted in accordance with the Section 333(a) through (c) of the FAA Modernization and Reform Act of 2012. Congress has directed the FAA "to safely accelerate the integration of civil unmanned aircraft systems into the national airspace system." Pursuant to Section 333 of the Reform Act, the FAA Administrator is to permit unmanned aircraft systems to operate in the National Airspace System ("NAS") where it is safe to do so based on the following considerations:

- The UAS's size, weight, speed, and operational capability;
- Operation of the UAS in close proximity to airports and populated areas; and
- Operation of the UAS within the visual line of sight of the operator.<sup>1</sup>

Additionally, the FAA Administrator has general authority to grant exemptions from its safety regulations and minimum standards when the Administrator decides a requested exemption is in the public interest. See 49 U.S.C. § 44701(±) (permitting exemptions from §§ 44701(a), (b) and §§ 44702-44716, et seq.).

**Reason why the exemption would benefit the public as a whole:**

Granting the present petition will further public interest by allowing Andar Enterprises, Inc. to safely, economically and efficiently perform aerial video and photography of golf courses and real estate over selected areas of Illinois.

Additionally, under our proposed operation of the Yuneec Q500 UAS the above benefits will be realized without implicating any privacy issues.

Finally, allowing Andar Enterprises, Inc. to operate such a unit will assure that new revenue streams can be opened, companies can remain competitive and contribute to the growth of the U.S. economy.

**Reason why the exemption would not adversely affect safety:**

The Yuneec Q500 is battery powered and will serve as a safe, efficient and economical alternative to manned aircraft that are traditionally utilized to obtain aerial imagery.

Because the unit is battery powered, there will be a reduction in air and noise pollution.

Due to the size and weight of the Yuneec Q500, there is less potential for collateral damage to person or property on the ground and in the air.

The Yuneec Q500 does not require an airport to take off or land and this will result in fewer aircraft that must be handled by air traffic control.

**III. QUALIFICATIONS FOR APPROVAL UNDER SECTION 333 OF THE REFORM ACT**

The proposed operations in this petition for exemption qualify for expedited approval under Section 333 of the Reform Act. Each of the statutory criteria and other relevant factors are satisfied.

---

<sup>1</sup> *Id.* at § 333(b)(1).

The proposed operations would permit the use of small and relatively inexpensive UAS under controlled conditions in airspace that is: (1) limited; (2) predetermined; (3) controlled as to access; and that (4) provides an increased level of safety beyond that existing when fixed or rotor wing aircraft are used to accomplish the same purpose.

Given the small size of the sUASs involved and the restricted environment within which they will operate, this petition exemption falls within the zone of safety, i.e., an equivalent level of safety, in which Congress desired the FAA to permit commercial UAS operations by exemption pending completion of formal rulemaking. Also, due to the size of the sUASs, their sole intended use in remote sensing for agriculture, and the restricted area in which the sUASs will operate, approval of the application presents no national security issue.

Considering the clear direction in Section 333 of the Reform Act, the authority contained in the Federal Aviation Act, as amended, the equivalent level of safety surrounding the proposed operations, and the significant public benefit, the grant of the requested exemptions is also in the public interest.

Accordingly, Petitioner respectfully requests the FAA grant the requested exemption without delay.

#### **IV. DESCRIPTION OF PROPOSED OPERATIONS**

##### **Scope of Operations:**

Andar Enterprises, Inc. intends to utilize the Yuneec Q500 system as a means of attaining aerial video and photographs for commercial purposes. This unit was selected in part because of its geo fence features and built in monitor for easy view of flight.

All imagery will be attained only during daylight hours, and the unit will only be flown in visual line of flight by the pilot in command. Maximum altitudes are expected to not go above 200 feet AGL most times, and never above 400 feet AGL. Speeds will not exceed 30 knots.

#### **V. REGULATIONS FROM WHICH EXEMPTION IS REQUESTED**

The Federal Aviation Act expressly grants the FAA the authority to issue exemptions. This statutory authority, by its terms, includes exempting civil aircraft, as the term is defined under § 40101 of the Act, including sUASs, from its safety regulations and minimum standards when the Administrator decides a requested exemption is in the public interest.<sup>2</sup>

---

<sup>2</sup> 2 See 49 U.S.C. § 44701(f) (authorizing the grant of exemptions from requirements of regulations prescribed pursuant to Sections 44701(a) and (b) and Sections 44702- 44716)

Petitioner seeks an exemption from several interrelated provisions of 14 C.F.R. Parts 21, 45 and 91 for purposes of conducting the requested operations using a UAS. Listed below are (1) the specific sections of 14 C.F.R. for which exemption is sought, and (2) the operating procedures and safeguards that Petitioner has established which will ensure a level of safety better than or equal to the rules from which exemption is sought.<sup>3</sup>

**A. 14 C.F.R. Part 21, Subpart H- Airworthiness Certificates and 14 C.F.R. § 91.203(a)(1)**

Petitioner seeks an exemption from 14 C.F.R. Part 21, Subpart H, which establishes the procedural requirements for the issuance of airworthiness certificates as required by 14 C.F.R. § 91.203(a)(1). The Federal Aviation Act and Section 333 of the Reform Act both authorize the FAA to exempt aircraft from the requirement for an airworthiness certificate, upon consideration of the size, weight, speed, operational capability, and proximity to airports and populated areas of the particular UAS.

All UAS operated by Andar Enterprises, Inc. will meet the requirements of a small UAS, i.e., have a gross take-off weight of less than 55 pounds. Given the size and limited operating area associated with the UAS operations, an exemption from Part 21, Subpart H, meets the requirements of an equivalent level of safety under Part 11 and Section 333 of the Reform Act.

In all cases, an analysis of these criteria demonstrates that the sUAS operated without an airworthiness certificate, in the restricted environment and under the conditions proposed, will be at least as safe as, or safer than, a conventional aircraft operating with an airworthiness certificate without the restrictions and conditions of the proposed sUAS operations.

**Equivalent Level of Safety** The sUASs to be operated hereunder weigh less than 55 pounds with payload, carry neither a pilot nor passenger, carry no explosive materials or flammable liquid fuels, and operate exclusively within a secured and sterile area. Unlike

---

<sup>3</sup> See 14 C.F.R. § 11.81 (e), which requires a petition for exemption to include: The reasons why granting the exemption would not adversely affect safety, or how the exemption would provide a level of safety at least equal to that provided by the rule from which you seek exemption.

other civil aircraft, the proposed operations will be controlled and monitored by the operator, as well as an observer and sensor operator, pursuant to the Manual's

requirements. Moreover, the FAA will have advance notice of all operations conducted under this exemption.

These safety enhancements, which already apply to civil aircraft operated in connection with existing inspection operations, provide a greater degree of safety to the Petitioner's employees, members of the public, and property owners than conventional operations conducted with airworthiness certificates issued under 14 C.F.R. Part 21, Subpart H. Lastly, application of these same criteria demonstrates that there is no credible threat to national security posed by the sUAS, due to its size, speed of operation, lack of explosive materials or flammable liquid fuels, and inability to carry a substantial external load.

#### **B. 14 C.F.R. Part 27 Airworthiness Standards: Normal Category Rotorcraft**

14 C.F.R. Part 27 sets forth the procedural requirements for airworthiness certification of normal category rotorcraft. To the extent the Petitioner's sUAS would otherwise require certification under Part 27, Petitioner seeks an exemption from Part 27's airworthiness standards for the same reasons identified in the exemption request from 14 C.F.R. Part 21, Subpart H.

#### **C. 14 C.F.R. § § 91.9(c), 45.23(b) and 45.27(a): Aircraft Marking and Identification Requirements**

Petitioner seeks an exemption from the aircraft marking and identification requirements contained in 14 C.F.R. § § 91.9(c), 45.23(b) and 45.27(a).

- 14 C.F.R. § 91.9(c), Civil Aircraft Flight Manual, Marking and Placard requirements, provides that:

No person may operate a U.S.-registered civil aircraft unless that aircraft is identified in accordance with Part 45 of this chapter.

- 14 C.F.R. § 45.23(b), Markings of the Aircraft, states:

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.

- 14 C.F.R. § 45.27(a), Rotorcraft, states:

Each operator of a rotorcraft must display on that rotorcraft horizontally on both surfaces of the cabin, fuselage, boom, or tail the marks required by § 45.23.

Exemption from 14 C.F.R. § 45.23(b) is warranted because the sUAS has no entrance to the cabin, cockpit, or pilot station on which the word "Experimental" can be placed. Moreover, given the size of the sUAS, two-inch lettering will be impossible. The word "Experimental" will be placed on the fuselage in compliance with 14 C.F.R. § 45.29(f).

Given the nature of the specific relief sought by this exemption request, Petitioner requires relief from the associated marking and identification requirements of § 45.27(a) and § 91.9(c), which would require compliance with § 45.23(b).

### **Equivalent Level of Safety**

The equivalent level of safety for exemptions to the aircraft marking and identification requirements of §§ 91.9(c), 45.23(b) and 45.27(a) will be provided by having the sUAS marked on its fuselage as required by § 45.29(f).

The FAA has previously issued the following exemptions to the aircraft marking requirements of § 45.23(b): Exemption Nos. 10700, 10167 and 10167A.

### **D. 14 C.F.R. § 91.9(b)(2): Civil Aircraft Flight Manual in the Aircraft and 14 C.F.R. § 91.203(a) and (b): Carrying Civil Aircraft Certification and Registration**

Pursuant to 14 C.F.R. § 91.9(b)(2):

(b) No person may operate a U.S.-registered civil aircraft

(2) For which an Airplane or Rotorcraft Flight Manual is not required by § 21.5 of this chapter, 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.

Pursuant to 14 C.F.R. § 91.203(a) and (b):

(a) Except as provided in § 91.715, no person may operate a civil aircraft unless it has within it the following:

(1) An appropriate and current airworthiness certificate...

(b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section 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.

Andar Enterprises, Inc. does not request an exemption from this section but instead notifies the FAA that, in accordance with FAA Office of Chief Counsel's Opinion dated August 8, 2014, the UAS flight manual, registration certificate and other documentation will be kept at the control station with the PIC during flight. The Chief Counsel's Office has held that for all UAS operations, this alternate method constitutes full compliance with the regulations.

#### **E. 14 C.F.R. § 91.7(a): Civil Aircraft Airworthiness**

Petitioner seeks an exemption from 14 C.F.R. § 91.7(a), which requires that a civil aircraft be in airworthy condition to be operated. Inasmuch there will be no airworthiness certificate issued for the sUAS, should this exemption be granted, no FAA regulatory standard will exist for determining airworthiness.

#### **Equivalent Level of Safety**

The UASs will be fully maintained and operated in accordance with all specifications and requirements identified by the manufacturer. Andar Enterprises, Inc. will only operate sUAS that have a proven track record of reliability and safety. Further, given that no UAS will be operated by Andar Enterprises, Inc. with a weight of over 55 pounds, and no UAS will be flown unless it has been maintained and prepared for flight in accordance with the manufacturer's requirements, an equivalent level of safety will be provided.

The FAA has issued the following exemptions to this regulation: Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167, 10167A, 10602, 32827, and 10700.

#### **F. 14 C.F.R. § 91.103: Preflight Action**

Petitioner seeks an exemption from 14 C.F.R. § 91.103, which requires a PIC to become familiar with specific information before each flight, including information contained in the FAA-approved Flight Manual on board the aircraft. While the PIC will be familiar with all information necessary to safely conduct the flight, an exemption is requested to the extent that an FAA -approved Flight manual is required.



### **Equivalent Level of Safety**

An equivalent level of safety will be provided by following the Aircraft Operations Manual and flight manual provided by the manufacturer. The PIC will take all required preflight actions- including reviewing weather, flight battery requirements, landing and takeoff distance, and aircraft performance data - before initiation of flight. The Aircraft Operations Manual and manufacturer's flight manual will be kept at the ground station with the operator at all times.

### **G. 14 C.F.R. § 91.109(a): Flight Instruction**

Petitioner seeks an exemption from 14 C.F.R. § 91.109(a), which provides 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." sUASs and remotely piloted aircraft, by their design, do not have functional dual controls. Instead, flight control is accomplished through the use of a box that communicates with the aircraft via radio communications.

### **Equivalent Level of Safety**

Given the size and speed of the sUAS, an equivalent level of safety can still be achieved without dual controls because no pilot or passengers are aboard the sUAS, and all persons will be a safe distance away in the event that the sUAS experiences any difficulties during flight instruction.

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. Exemptions include: Nos. 5778K and 9862A.

### **H. 14 C.F.R. § 91.119: Minimum Safe Altitudes**

Petitioner requests an exemption from the minimum safe altitude requirements of 14 C.F.R. § 91.119. Section 91.119 prescribes the minimum safe altitudes under which aircraft may not operate, including 500 feet above the surface and away from any person, vessel, vehicle, or structure in non-congested areas; See 14 C.F.R. § 91.119(c). Section 91.119(d) allows for a helicopter to operate at less than those minimum altitudes when it can be operated "without hazard to persons or property on the surface," provided that "each person operating the helicopter complies with any routes or altitudes specifically prescribed for helicopters by the FAA."

To provide the intended services, the sUAS is normally operated below 400 feet AGL. Additionally, the sUAS will maintain a lateral distance of at least 100 feet from inhabited structures, buildings, vehicles, and vessels, and from people not associated with the operation.

### **Equivalent Level of Safety**

Compared to flight operations with rotorcraft weighing far more than the maximum sUAS weight proposed herein, and given the lack of flammable fuel, any risk associated with these operations is far less than those that presently exist with conventional aircraft. An equivalent level of safety will be achieved given the 'size, weight, and speed of the UAS, as well as the location where it is operated. As set forth in the Manual, the sUAS will be operated in a restricted area. Furthermore, by operating at such lower altitudes, the sUAS will not interfere with other aircraft that are subject to the minimum safe altitude regulations.

### **I. 14 C.F.R. § 91.121: Altimeter Settings**

This petition seeks an exemption from 14 C.F. .R. § 91.121, which requires a person operating an aircraft to maintain cruising altitude or flight level by reference to an altimeter that is set to the elevation of the departure airport or barometric pressure. An exemption is required to the extent that the sUAS does not have a barometric altimeter, but rather a GPS altitude read out.

### **Equivalent Level of Safety**

An equivalent level of safety will be achieved by following the procedures set forth in the Manual. As prescribed in the Manual, the operator will confirm the altitude of the launch site shown on the GPS altitude indicator before flight. Moreover, the PIC will use the GPS altitude indicator to constantly monitor the sUAS's height, thus ensuring operation at safe altitudes.

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

Petitioner requests an exemption from 14 C.F.R. § 91.151(a)'s fuel requirements for flight in VFR conditions. Section 91.151 states:

- (a) No person may begin 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.

Here, the technological limitations on sUAS battery power means that no meaningful flight operations can be conducted while still maintaining a 30-minute reserve. Andar Enterprises, Inc. proposes that all flights comply with this requirement by mandating that the aircraft be safely landed with no less than 25% of battery life remaining.

### **Equivalent Level of Safety**

An equivalent level of safety will be achieved because the operations will be conducted on-site without significant transit time by the sUAS. All flights will be planned to be terminated with no less than 25% reserve battery power still available. This restriction would be more than adequate to return the sUAS safely to the ground and its planned landing zone from anywhere in its limited operating area even in the event of an unexpected occurrence. Operation of the sUAS with less than 30 minutes of reserve fuel does not include the type of risks that Section 91.151 (a) was intended to alleviate given the size and speed of the small UAS, and the proximity of the flight operation to the landing zone. Moreover, operation will be limited to controlled areas where only people and property owners, or official representatives who have signed waivers, will be allowed.

This request for exemption falls within the scope of prior exemptions, including Exemption Nos. 10673, 2689F, 5745, 10673, and 10808.

### **K. 14 C.F.R. § 91.405(a), 91.407(a)(I), 91.409(a)(2); 91.417(a) and (b): Maintenance Inspections**

Petitioner also seeks an exemption from the maintenance inspection requirements contained in 14 C.P.R. § 91.405(a), 91.407(a)(I), 91.409(a)(2); 91.417(a) and (b). These regulations specify maintenance and inspection standards in reference to 14 C.P.R. Part 43. See, e.g., 14 C.P.R. § 91.405(a) (stating that each owner or operator of an aircraft "[s]hall have the aircraft inspected as prescribed in subpart E of this part and shall between required inspections ... have discrepancies repaired as prescribed in part 43 of this chapter"). An exemption to these regulations is needed because Part 43 and these sections only apply to aircraft with an airworthiness certificate, which the sUAS will not have.

### **Equivalent Level of Safety**

An equivalent level of safety will be achieved because maintenance and inspections will be performed in accordance with the UAS Manufacturer's Manual, as referenced in the Aircraft Operations Manual. As provided in the Operations Manual, the operator will ensure that the sUAS is in working order prior to initiating flight, perform required maintenance, and keep a log of any maintenance performed. The operator is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

If mechanical issues arise, the sUAS's size and carrying capacity, and the fact that flight operations will only take place in restricted areas for limited periods of time during daylight hours, creates less risk than that associated with conventional rotorcraft performing the same operation.

### **VI. DRUG AND ALCOHOL PROGRAM**

As set forth in the Manual, Andar Enterprises, Inc. is committed to a drug-free work place and the right of the flying public it serves to safe and efficient flight service. All employees of Andar Enterprises, Inc. who perform safety sensitive and/or security related functions are prohibited from performing work if they have alcohol or a prohibited drug in their system.

### **VII. PUBLIC INTEREST**

Granting Andar Enterprises, Inc. exemption request furthers the public interest. National policy set by Congress favors early integration of UAS into the NAS in controlled, safe working environments such as those proposed in this petition. In addition, maintaining industrial safety has been a priority of state and local governments for decades. By its nature, the proposed use of sUAS offer superior safety to performing the same tasks with conventional aircraft or rotorcraft.

In addition, granting the exemption will help advance the knowledge base for conducting commercial UAS operations. Andar Enterprises, Inc. is committed to working with the local FSDO to share data from its operations.

This additional data will help the FAA set future rules regarding UAS flight operations, maintenance, and crew qualifications. The public also has an interest in reducing the hazards and emissions associated with alternate use of conventional aircraft to conduct

similar operations. The UAS in question is very light weight and does not carry any flammable fuel, further reducing the risk from any potential accident.

## **VIII. PRIVACY**

All flights will occur in accordance with any state or local laws regarding privacy.

## **IX. FEDERAL REGISTRY SUMMARY**

Pursuant to 14 C.F.R. Part 11, the following summary is provided for publication in the Federal Register, should it be determined that publication is needed:

Andar Enterprises, Inc. seeks an exemption from the following rules:  
14 CFR Part 21, Subpart H; 14 CFR Part 27; 14 CFR 45.23(b); 14 CFR 91.7(a);  
14 CFR 91.9(b)(2); 14 CFR 91.103; 14 CFR 91.109(a); 14 CFR 91.119; 14 CFR  
91.121; 14 CFR 91.151(a); 14 CFR 91.203 (a) & (b); 14 CFR 91.405(a); 14 CFR  
91.407(a)(1); 14 CFR 91.409(a)(2); 14 CFR 91.417 (a) & (b).

Approval of these exemptions will allow Andar Enterprises, Inc. to offer on-demand commercial UAS operations for applications in precision agriculture. The exemptions will enhance safety by reducing risk to the general public and property owners from the hazards associated with performing equivalent work with conventional aircraft and rotorcraft.

## **X. CONCLUSION**

Satisfaction of the criteria provided in Section 333 of the Reform Act of 2012-size, weight, speed, operating capabilities, proximity to airports and populated areas, operation within visual line of sight, and national security-provides more than adequate justification for the grant of the requested exemptions to permit Andar Enterprises, Inc. to operate sUASs and provide on-demand UAS services to private entities.

Granting the requested exemption will benefit the public interest as a whole in many ways, including (1) significantly improving safety and reducing risk by alleviating human exposure to danger, and (2) improving the quality of services and decreasing operating costs compared with conventional flight operations.

If you have any questions or require any additional information, please do not hesitate to call.

Andar Enterprises, Inc.

*Darren Barr*

**Darren Barr, Owner**  
**847-217-4100**

Attachments: Operations Manual (submitted as a Confidential Documents under 14 C.F.R. § 11.35(b) and exempt from disclosure under the Freedom of Information Act, 5 U.S.C. § 552 et seq., and any other requirements established by the FAA pursuant to Section 333 of the Reform Act).