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

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

June 16, 2015

Exemption No. 11813
Regulatory Docket No. FAA–2015–1010

Ms. Marjorie K. Conner
Counsel for CellAntenna Corporation
700 West View Terrace
Alexandria, VA 22302

Dear Ms. Conner:

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 6 and May 12, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of CellAntenna Corporation (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct visual observation, inspection, and recording and RF signal extension and detection work.

See Appendix A for the petition submitted to the FAA describing the proposed operations and the regulations that the petitioner seeks an exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

Airworthiness Certification

The UAS proposed by the petitioner are the DJI S1000 Spreading Wings, DJI Inspire, DJI 450 Flame Wheel Quadcopter, and DJI 550 Flame Wheel Hexacopter.

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[1]. 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, CellAntenna Corporation 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, CellAntenna Corporation 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 S1000 Spreading Wings, DJI Inspire, DJI 450 Flame Wheel Quadcopter, and DJI 550 Flame Wheel Hexacopter 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.ntsb.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

Enclosures

MARJORIE K. CONNER
ATTORNEY
700 WEST VIEW TERRACE
ALEXANDRIA, VIRGINIA 22302
APRIL 6, 2015

703-706-5917
mkconner@mkconnerlaw.com

U.S. Department of Transportation
Docket Management System
1200 New Jersey Ave., S.E.
Washington, D.C. 20590

Re: CellAntenna Corporation Petition for Exemption
Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 and Section 11.81 of the FAA's rules, 14 C.F.R. §11.81

Dear USDOT:

By counsel, and pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 ("Reform Act"), and Section 11.81 of the FAA's rules, 14 C.F.R. § 11.81, CellAntenna Corporation ("CellAntenna") petitions for exemption from a number of Federal Aviation Regulations ("FARs"),[1] as detailed herein, to allow commercial operation of small unmanned aircraft systems[2] ("UAS").

CellAntenna's petition for exemption ("Petition") is supported by the information provided herein, as well as its appended CellAntenna UAS Operations Manual ("CellAntenna Manual") and each manufacturer's UAS Manual ("UAS Manual").[3] CellAntenna submits the CellAntenna Manual and UAS Manual (the "Manuals") as confidential documents, consistent with Section 11.35(b) of the FAA's rules, 14 C.F.R. §11.35(b). The Manuals contain confidential commercial and/or proprietary information that CellAntenna has not shared and will not share with others. The Manuals set forth operating conditions and procedures that are not generally 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 disclosure requirements established by the FAA pursuant to Section 333 of the Reform Act.

[1] Specifically, CellAntenna requests exemption from Part 21, Subpart H; Part 27; Sections 45.23(b); 45.27(a); 61.113; 91.7(a); 91.9(b)(2); 91.9(c); 91.103; 91.105; 91.109(a); 91.119; 91.121; 91.151(a); 91.203(a) and (b); 91.405(a); 91.407(a)(1); 91.409(a)(1) and (2); 91.417(a) and (b), and any other provision which the FAA determines should be included in the exemption request. *See* Jeffrey J. Walsh, Reg. Docket No. FAA-2014-0681, at 3-4.

[2] CellAntenna envisions that its UAS services will include, but will not be limited to, motion picture filming and other photographic services, bridge, building, construction, and other architectural observation and inspection, electrical power grid inspection, telecom infrastructure inspection, disaster recovery and insurance site inspection, as well as agriculture observation and inspection. In addition to these video and visual observation services, CellAntenna will provide UAS borne communications services, consistent with FCC rules and regulations.

[3] The UAS Manual includes all manufacturer publications relating to the device, including, without limitation, operations and flight manuals, user guides, component maintenance manuals, pilot training manuals, service information letters and safety/service bulletins.

I. CellAntenna

CellAntenna is a family-owned U.S. company, based in Coral Springs, Florida. Since 2002, CellAntenna has led the industry in marketing and servicing communications devices. In the course of its business, CellAntenna has developed a special interest in UAS, particularly in combining its wireless communications expertise with UAS devices. CellAntenna's communications expertise brings added reliability and diversity to its UAS operations.

CellAntenna's contact information is:

Sid Kopperl
Chief Operating Officer
CellAntenna Corporation
12453 NW 44th Street
Coral Springs, Florida 33065
sk@cellantenna.com
Telephone: 954-340-7053

CellAntenna's counsel:

Marjorie K. Conner
700 West View Terrace
Alexandria, Virginia 22301

II. CellAntenna's Proposed Operation

CellAntenna proposes to use UAS for visual observation, inspection, and recording and RF signal extension and detection work. CellAntenna has tailored its operations to meet the criteria established in the FAA's grant of the Astraeus Aerial exemption, Exemption No. 11062, Reg. Docket No. FAA-2014-0352 ("Astraeus Aerial") and the dozens of similar exemptions granted based on the Astraeus Aerial precedent. CellAntenna's UAS operations will be conducted in accord with the conditions and limitations set forth in the grant of this Petition, CellAntenna's Manual and the UAS Manual.

CellAntenna's UAS operations will be conducted in controlled circumstances, away from spectators and persons not involved in the operation. All operations will be conducted during daylight, Visual Flight Rule ("VFR") conditions, at altitudes below 400 feet Above Ground Level ("AGL"). CellAntenna's operations will be conducted at a level of safety superior to that of fixed wing aircraft or helicopters performing the same or similar work.

III. Relevant Statutory Authority

This Petition is submitted pursuant to Section 333(a) through (c) of the Reform Act. In the Reform Act, Congress directed the FAA to "safely accelerate the integration of civil unmanned aircraft systems into the national airspace system." As directed by Section 333 of the Reform Act, where it is safe to do so, the FAA Administrator may permit unmanned aircraft systems to operate in the National Air Space ("NAS"), based on specific considerations:

- The UAS' size, weight, speed, and operational capability;
- Control of 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.

The Administrator of the FAA also has general authority to grant exemptions from its safety regulations and minimum standards when the Administrator determines a requested exemption is in the public interest.[4]

IV. CellAntenna's Proposed Operations are Consistent with Section 333 of the Reform Act and the Astraeus Aerial Exemption and the dozens of Exemptions Granted based on the Astraeus Aerial Precedent.

CellAntenna's proposed operations fit each of the criteria for expedited approval set forth in Section 333 of the Reform Act, and is consistent in its basis with the 69 Petitions granted by the FAA between September 25, 2014 and May 26, 2015, including Astraeus Aerial.

A. UAS Size, Weight, Speed, and Operational Capability

A grant of the requested exemption is appropriate because the physical properties of CellAntenna's UAS meet the size, weight, speed, and operational capability criteria meet the parameters set forth in the Astraeus Aerial grant, and its progeny. Specifically, CellAntenna's UAS

- Weigh less than 55 lb.;
- Will not be flown in excess of 87 knots;
- Will not be flown above 400 ft. AGL;
- Will be flown so that the flights may be safely terminated, including with a reserve of 20% of the battery's maximum charge capacity;
- The UAS will generate altitude information using onboard GPS triangulation equipment, digitally encoded barometric altimeter, radio altimeter, or a combination of them. Altitude information will be transmitted to the pilot in charge by telemetric data feed.
- The UAS will have system redundancies and independent functionalities to ensure the overall safety and predictability of the system. If connection to the remote control or ground control station is lost, failsafe systems will permit the UAS to return to home or to a predetermined location and safely land without injury or damage.
- The radio frequencies used for operations and control of the UAS will comply with Federal Communications Commission ("FCC") and/or other controlling rules and specifications.

[4] *See generally,* 49 U.S.C. §§ 106(f), 44701(a), (b), and (f), and 44702-44716, *et. seq.,* and, more specifically, 14 C.F.R. § 11.81.

The Administrator has noted that if the operations proposed in this petition were conducted using a helicopter, the aircraft's take-off weight could "weigh thousands of pounds or more and [would be] operated by an onboard pilot, in addition to other onboard crewmembers."[5] The weight difference between a helicopter and CellAntenna's UAS significantly reduces the potential harm to the operator and the public, in the event of an accident or incident. Remote operation of the UAS eliminates the risk of harm to the onboard pilot and camera or other device operator. The Administrator is well-acquainted with helicopter accidents that may be avoided by conducting aerial filming, observation, and other activities by UAS.[6]

B. The Operational Restrictions set forth in the CellAntenna Manual meet the Administrator's criteria.

The CellAntenna Manual and the UAS Manual provide the procedures and limitations necessary to safely and successfully perform the operations contemplated by this petition. Of note, the CellAntenna Manual and the UAS Manual provide operational limitations and conditions to ensure a high level of safety to operations, consistent to or exceeding current FAA guidelines:

1. The UAS weighs less than 55 lb., fully loaded.
2. The minimum crew for each operation will include a Pilot-in-Command of the UAS, and one or more Visual Observers ("Observer"), as necessary to conduct a safe mission.
3. The UAS shall be operated within Visual Line of Sight ("VLOS") of the PIC and Observer at all times.
4. The PIC must use human vision unaided by any device other than corrective lenses.
5. The Observer designated for any operation will be in constant voice contact with the PIC.
6. Any additional requirements set forth in the Administrator's grant of this petition shall be added to the CellAntenna Manual. The CellAntenna Manual shall be maintained and made available to the Administrator upon request. If any discrepancy exists between the conditions and limitations in the exemption, as granted, and the CellAntenna Manual, the conditions and limitations in the exemption, as granted, shall take precedence and shall be followed.
7. Maximum total flight time for each operational flight shall be limited to that amount of time that the UAS may be flown and still maintain a reserve battery power capacity of no less than 20%.

[5] Singer's Creations, Exemption No. 11191, Reg. Docket No. FAA-2014-0915, at 2.
[6] The National Transportation Safety Board ("NTSB") maintains a database of Aviation Accidents. It may be accessed at: http://www.ntsb.gov/_layouts/ntsb.aviation/month.aspx. Some of the helicopter accidents reported there include: NTSB Report AAR-84-14, reporting three fatalities and six injuries in a closed set helicopter filming operation; MIA07FAH7, reporting two fatalities and one serious injury in a photo shoot over water; and NIC08FA071, reporting three fatalities during a search for a lost hunter.

8. Flights will be operated at an altitude of no more than 400 feet AGL. Flights will never enter navigable controlled airspace without prior written authorization and approval from the FAA.
9. Lateral distances from participating persons, as defined in FAA Order 8900.1 V3, C8, S1, will be maintained.
10. Flights will be operated at a lateral distance of at least 500 feet from any non-participating persons, unless that person is in a position in which he or she is shielded from the UAS and possible debris resulting from UAS failure. Flight will be terminated if a non-participating person within 500 feet of the UAS leaves a shielded position. At no time will the UAS be conducted so close to persons or objects to present and undue hazard to the PIC or Observer, as prescribed in Section 91.119(a) of the FAA's rules, 14 U.S.C. § 91.119(a).
11. Flights will be limited to a speed of 78 knots.
12. Prior to each flight the PIC shall inspect the UAS to confirm that it is in safe-flight condition. The PIC shall not operate the UAS if the inspection reveals a condition that adversely affects the safe operation of the UAS unless and until the condition has been removed and the UAS is found to be in safe-flight condition. The Ground Control Station ("GCS") shall be included in the preflight inspection. All maintenance, repairs, and alterations shall be properly documented in the UAS records.
13. Any UAS that has undergone maintenance, repair, or alteration that affects the UAS operation or flight characteristics must undergo functional test flight in accordance with the CellAntenna Manual. The PIC conducting the functional test flight must record the functional test flight and its results in the UAS aircraft records. The requirements and procedures for functional test flights and UAS entry are prescribed by the CellAntenna Manual.
14. The UAS will be operated and maintained according to the UAS Manual.
15. Prior to any flight, a Mission Plan shall be recorded, setting forth the operational limitations and conditions for the mission, as well as key personnel contact information and a description of any anticipated hazards on or in the vicinity of the planned flight path or area.
16. Unless the FAA relieves it of this obligation, CellAntenna shall obtain a Certificate of Waiver or Authorization ("COA") from an Air Traffic Organization ("ATO") prior to conducting operations. As long as required or appropriate, CellAntenna shall request a Notice to Airmen ("NOTAM") with the appropriate ATC facility between 48 – 72 hours before flight.
17. If any permissions or permits are required by territorial, state, county, or municipal jurisdictions before flight, CellAntenna shall obtain them.
18. CellAntenna shall coordinate its operations with the appropriate Flight Standards District Office ("FSDO"), as required.
19. If the UAS loses communication with the PIC, it shall return to a pre-determined location within the operational area and land safely.

20. CellAntenna will ensure contingency plans to safely terminate the flight if there is a loss of communication between the PIC and the Observer.
21. The UAS shall have the capability to abort the flight safely in the case of flight-affecting unpredicted obstacles or emergencies.
22. Each PIC and each Observer will hold at least a current second class medical Certificate.
23. Each PIC shall have accumulated and logged at least 12 hours training hours or 24 flights accrued before designated as a PIC on any flight.
24. Each PIC shall have accumulated and logged a minimum of 5 hours as a UAS pilot operating the make and model of UAS to be utilized for operations under the exemption, including three take-offs and three landings within the 90 days immediately preceding any flight.
25. Operations shall be conducted only during daytime VFR Meteorological Conditions; no flights shall be conducted under special visual flight rules ("SVFR").
26. The UAS shall remain clear and yield the right of way to any and all manned operations and activities at all times, including, without limitation, ultralight vehicles, parachute activities, parasailing activities, hang gliders.
27. UAS operations under Instrument Flight Rules, at night, or beyond VLOS are prohibited.

V. **Regulations from which CellAntenna requests Exemption.**

CellAntenna requests exemption from several interrelated provisions of Title 14 of the CFR, Parts 21, 45, 61, and 91, for purposes of conducting its UAS operations. The specific code sections are listed below, along with operational protections demonstrating that CellAntenna will achieve equivalent or greater safety protections than the rule from which it seeks exemption.

A. Certain required documents to be kept at the CGS: Sections 91.9(b), 91.203(a) and (b), 47.31(b)(2), and 47.31(c) of Title 14 of the CFR.

On August 8, 2014, Mark W. Bury, Assistant Chief Counsel for International Law, Legislation and Regulations, AGC-200, issued a Memorandum regarding the maintenance of certain required documents when flying UAS ("Memorandum"). Specifically, the Memorandum stated that maintenance of the airworthiness certificates, aircraft manuals, and aircraft registration certificates at the CGS would satisfy the intent of the governing FAA regulations.[7] CellAntenna proposes to maintain the required documents at the GCS, available to the PIC.

[7] *See also, e.g.,* Astraeus Aerial, 19-20; Jeffrey J. Walsh, Grant of Exemption No. 11229, Reg Docket No. FAA-2014-0681, at 4 ("Walsh").

B. Provisions from which Exemption may be Unnecessary.

In an abundance of caution, CellAntenna seeks exemption from the obligations of certain provisions with which the Administrator may find CellAntenna's operations comply or that they are inapplicable to UAS operation. These sections are:

1. Airworthiness Standards Normal Category Rotorcraft: 14 C.F.R. Part 27 Airworthiness Certificates: 14 C.F.R. Part 21

Part 21 of Title 14 sets for the requirements for Airworthiness Certificates for Products and Parts. Part 27 of Title 14 sets forth the procedural requirements for airworthiness certification of normal category rotorcraft. In the recent decision on the petition for exemption filed by Solusia Air, LLC,[8] the FAA determined that in accord with the statutory criteria set forth in Section 333 of Reform Act, and in consideration of the size, weight, speed, and limited operating area associated with UAS and its operation, the Secretary of Transportation has determined that the UAS meets the criteria of Section 333 of the Reform Act. Therefore, the FAA found that relief from 14 C.F.R. Part 21, and 27 was well as any associated noise certification and testing requirements of Part 36 was unnecessary.

Similarly, the UAS proposed for CellAntenna's operations meets the Section 333 criteria. CellAntenna requests a determination that relief from Parts 21, 27, and 36 is unnecessary.

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

In Solusia Air, the FAA said that it has previously determined, in Astraeus Aerial, that relief from these sections is not necessary. Relevant materials may be kept in a location accessible to the PIC in compliance with the regulations, and , as in Astraeus Aerial, compliance with registration and marking requirements of Part 45 may be met[9] because the UAS is not granted experimental certificates under Section 21.191 of the FAA's rules, and because the UAS may be marked, in accord with 14 C.F.R. Part 45 with identification markings "as large as practicable."[10]

CellAntenna will mark its UAS with N-Number identifiers in a manner which is as large as practicable, so that and equivalent level of safety may be achieved.

3. Preflight Action: 14 C.F.R. § 91.103

CellAntenna requests exemption from Section 91.103 of the FAA's rules, 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

[8] Solusia Air, LLC, March 20, 2015, Exemption No.11216, Reg. Docket No. FAA-2014-0912, at 2.
[9] Solusia Air, at 5.
[10] Astraeus Aerial, at 14.

aircraft. The FAA stated that a UAS operator can comply with the other requirements of Section 91.103(b)(2). Pre-flight procedures that require reviewing weather, flight battery requirements, landings, and take-off distances and aircraft performance data before initiation of flight address the FAA's concerns regarding compliance with Section 91.103(b).[11] The CellAntenna Manual sets for exactly these pre-flight procedures and more.

CellAntenna will achieve an equivalent level of safety by ensuring compliance with the procedures set forth in the CellAntenna Manual. The PIC will review a series of checklists designed to identify any defects or inoperable components in in accord with the CellAntenna Manual, including checklists covering Pre-Flight, Launch, Landing, and Post-Flight procedures. The PIC will also be required to review weather, flight requirements, battery charge, landing and takeoff distance, UAS performance data, and contingency landing areas – before initiation of flight. The PIC and the Observer will take into account the FAA's stricter requirements with regard to visibility and distance from clouds. They will also be aware of sun glare hazards.

C. Other Provisions from which CellAntenna Seeks Exemption.

1. Civil Aircraft Airworthiness: 14 C.F.R. § 91.7(a) and (b)

In Solusia Air, the FAA determined that relief from Section 91.7(a) and (b) is necessary.[12] It determined that compliance with the UAS operating documents to be a sufficient means for determining an airworthy condition – based on compliance with the operating documents prior to every flight.[13]

CellAntenna requests exemption from Section 91.7(a) of the FAA's rules, 14 C.F.R § 91.7(a). The CellAntenna and the UAS Manual require the PIC to perform UAS inspection prior to every flight. The Manuals set forth standards for test flight after repair or significant maintenance, and set forth the timetable for routine maintenance and replacement of parts. An equivalent level of safety is achieved by the degree of attention to the airworthiness of CellAntenna's UAS.

2. Flight crewmembers at stations: 14 C.F.R. § 91.105

Section 91.105 of the FAA's rules, 14 C.F.R. § 91.105, requires that flight crewmembers be at specific places aboard the aircraft. Because the UAS is unmanned, no crewmembers are present on UAS flights. Compliance with Section 91.105, is therefore impossible.

CellAntenna will maintain a Section 91.105-equivalent level of safety because it will avoid the dangers sought to be ameliorated by it. As no passengers or crew will be

[11] Solusia Air, at 5.
[12] In contrast, in Astraeus Aerial, the FAA determined that "because an airworthiness certificate will not be issued, exemption from § 91.7(a) is not necessary. In an abundance of caution, CellAntenna requests an exemption of § 91.7(a), if the FAA determines an exemption is necessary and appropriate.
[13] Solusia Air, at 2.

onboard, there is no need to specify the places at which the crewmembers will be stationed. CellAntenna will achieve an equivalent level of safety because the CellAntenna Manual specifies stations for the PIC and Observer for all flight phases.

3. Minimum Safe Altitudes: 14 C.F.R. § 91.119(c)

CellAntenna requests an exemption from the minimum safe altitude requirements set forth in Section 91.119 of the FAA's rules, 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. (Section 91.119(c)) Section 91.119(d) allows for a helicopter to operate a lower 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."

An exemption is appropriate because in order to conduct aerial observation and filming and conduct the RF applications proposed by CellAntenna, a UAS must operate at an altitude of lower than 400 feet AGL. Order No. 8900.1 V3, C8, S1 allows UAS operations to be closer than 500 feet from persons involved in the flight operations.

CellAntenna will accomplish an equivalent level of safety by minimizing the dangers attendant to the flights generally controlled by Section 91.119. Helicopters, by their size, fuel load, and difficulty to control, are much more dangerous than UAS devices. With the minimal size, weight, and speed of CellAntenna's UAS, as well as the CellAntenna Manual's requirement that flights be in restricted areas, a lateral distance of at least 500 feet from any nonparticipating unshielded person, CellAntenna's proposed UAS flights are much safer than helicopter or fixed wing manned flights for the same purposes.

If any nonparticipating person leaves a shielded position, the CellAntenna Manual requires that the flight be terminated. Additionally, the CellAntenna Manual requires that UAS operations occur at least 500 feet away from vehicles or structures for which the property owner or controller has not granted permission and the PIC or the Observer has not conducted a safety assessment.

CellAntenna requests permission to conduct operations as close as 200 feet from non-participating persons with the consent of the Administrator, as granted to Astraeus Aerial.[14]

Even in the closer proximities, CellAntenna's operations will achieve and equivalent or even greater level of safety than that traditionally accomplished by Section 91.119.

4. Altimeter Settings: 14 C.F.R. § 91.121

CellAntenna requests an exemption from Section 91.121 of the FAA's rules, 14 C.F.R. § 91.121, which requires a person operating an aircraft to maintain cruising altitude or

[14] Astraeus Aerial, at 20-21.

flight level by reference to an altimeter that is set to the elevation of the departure airport or barometric pressure. And exemption is required to the extent that UASs do not use a barometric altimeter. Rather UASs maintain altitude and monitor it through an onboard GPS altitude read out.

In the grant of the Astraeus Aerial exemption, the FAA has stated than a Section 91.121 equivalent level of safety can be achieved in circumstances where: 1) the UAS is operated at 400 feet AGL or below; 2) within VLOS; 3) where GPS based altitude information is relayed in real time to the operator at a ground-based on-screen display; and 4) where prior to each flight, a zero altitude initiation point is established for the PIC to confirm accuracy of the onboard GPS. [15]

CellAntenna's UAS meets all of these described operational characteristics. As required by the CellAntenna Manual, the PIC will be required to calibrate the aricraft's GPS compass prior to each flight. Like the grant of the Astraeus Aerial exemption, the CellAntenna UAS, and the CellAntenna Manual safety mitigation procedures both ensure a Section 91.121-equivalent level of safety.

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

CellAntenna requests an exemption from Section 91.151(a) fuel requirements for flight in VFR conditions. Section 91.151 requires sufficient fuel onboard to fly to the first point of intended landing and then some before a flight may begin. Because UAS devices are not powered by "fuel" but by battery power, the fuel requirement is not meaningful in the UAS context.

The FAA has recognized that an equivalent level of safety may be achieved through reservation of ample battery power, specified as a reserve of 20% of battery power or completion of the flight within 30 minutes flight time, whichever comes first.[16]

Not only does the CellAntenna Manual specify compliance with the FAA's battery reservation requirement, but CellAntenna's UAS uses a low battery warning system. The amount of battery reserve power remaining will be transmitted to the PIC via telemetric data feed, which downlinks from the UAS to a ground-based-on-screen display. As specified in the CellAntenna Manual, the PIC will immediately fly the UAS back to the home launch location or a pre-determined location at which the UAS may land safely, while still maintaining a minimum of 20% reserve battery power. The CellAntenna Manual procedures, combined with its flight limitations, the size, weight, speed, and operational capability of the UAS devices – within the VLOS of the PIC and Observer ensure that CellAntenna's proposed operation will equal, and may exceed, Section 91.151 safety levels.

6. Maintenance Inspections: 14 C.F.R. §§ 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), 91.417(a) and (b)

[15] Astraeus Aerial, at 21.
[16] *See, e.g.,* Astraeus Aerial, at 21; Clayco, Inc., Exemption No. 11109, Docket No. FAA-2014-0507, at 15.

Sections 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), 91.417(a) and (b) of the FAA's rules, 14 C.F.R. §§ 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), 91.417(a) and (b), require that an aircraft be inspected and have discrepancies repaired, in accord with Part 43 of the FAA's rules. Part 43 relates to airworthiness certification processes. Airworthiness certificates are not appropriately obtained for UAS devices, so that an exemption from the Maintenance Inspection rules is appropriate.

CellAntenna will maintain an equivalent level of safety by conducting maintenance and inspections in accord with the CellAntenna Manual and the UAS Manual. The PIC will conduct a pre-flight inspection of the UAS and all associated equipment to account for any discrepancies or inoperable components. CellAntenna will perform and verify maintenance to correct any conditions which may affect safe operation of the UAS. No flights will be undertaken unless and until all flight-critical components of the UAS have been determined to be airworthy and in a safe operation condition. CellAntenna will conduct a functional test flight following the replacement or repair of any flight-critical components. The PIC will record the functional test flight in the aircraft records upon successful completion.

The CellAntenna Manual also includes requirements to follow manufacturer UAS aircraft/component, maintenance, overhaul, replacement, inspection, and life-limit specifications for essential components, including: powertrain system (power plant), propellers, avionics, and control surfaces (including ailerons/elevens), structures and airframe, camera system, electrical systems (including batteries), GCS, hazard accessories, and spare parts. The CellAntenna Manual also includes procedures to document and maintain a record of the UAS maintenance, preventative maintenance, alterations, status of replacement/overhaul component parts, and the total time in-service of CellAntenna's UASs. As a whole, the procedures specified in the CellAntenna Manual ensure that maintenance inspections will be conducted in a manner to achieve an equivalent or higher level of safety, when compared to the FAA's rules.

7. Private Pilot Privileges and Limitations: 14 C.F.R. § 61.113

Section 61.113 of the FAA's rules, 14 C.F.R. § 61.113, restricts private pilot certificate holders from flying aircraft for compensation or hire. It also would require each PIC to hold a second class medical certificate. The restrictions and requirements of Part 61 are designed to protect passengers or cargo when carried for hire. Operation of a UAS for hire bears much less risk to life, limb, and treasure, because of the size, weight, speed, and operational capability of the UAS. CellAntenna's UAS will not carry passengers or cargo.

The FAA has recognized the unique characteristics of UAS, and acknowledged that UAS operation does not warrant the additional cost and restrictions attendant to requiring a PIC for hire to have a commercial pilot certificate and a second class medical certificate.

CellAntenna will ensure Section 61.113-equivalent safety through the requirements set forth in the CellAntenna Manual. The CellAntenna Manual includes the restrictions

imposed on Astraeus Aerial in the exemption granted to it. CellAntenna will operate away its UAS away from persons and property not involved in its operation. Flights will be conducted by VLOS at 400 feet AGL or below. When required, a NOTAM will be issued between 48 and 72 hours before the flight will commence. As required, the flight will be coordinated with the appropriate FSDO.

CellAntenna's PICs are and will be thoroughly conversant in airspace and communications issues arising in all aircraft operations and, particularly, in the unique aspects of UAS operations. The CellAntenna Manual requires PICs to have UAS experience, including flight time logged with the specific make and model he or she deploys for each mission. These precautions ensure that CellAntenna's operations will achieve a level of safety equivalent to or even higher than that achieved by the requirements of Section 61.113 of the FAA's rules.

D. Drug and Alcohol Program

CellAntenna is an ongoing business. It is a small, family-owned company. It currently has policies in place to ensure that no person is under the influence of alcohol or any drug while conducting CellAntenna business. Its policies will extend to ensure that no person may participate in UAS flight operations under the influence of alcohol or any drug.

E. Public Interest.

The FAA recently documented the significant public interest in the grant of petitions for exemption so that UAS may be commercially deployed. In the process of proposing rules for UAS, the FAA's Office of Aviation Policy and Plans, Economic Analysis Division issued an evaluation of the impact of the proposed rules ("OAPP Regulatory Evaluation"). The evaluation found both economic benefits and safety benefits in the operation of UAS, particularly to the extent UAS replaced more dangerous activities.[17]

In the OAPP Regulatory Evaluation, the FAA specifically analyzed four UAS commercial uses: A) Aerial Photography; B) Precision Agriculture; C) Search and rescue/law enforcement; and D) Bridge Inspection.

A. Aerial Photography

Considering use of UAS in Aerial Photography, the FAA found that by substituting an unmanned aviation operation using a very light aircraft for a more complex manned aviation operation that uses a much heavier aircraft, dangers of an accident, to both people onboard and on the ground, are minimized. The FAA also recognizes that cost-savings will occur by the reduction in cost for aerial photography. [18]

[17] OAPP Regulatory Evaluation, at 14-26
[18] *Id.,* at 16-17

B. Precision Agriculture

Considering use of UAS in precision agriculture, the FAA recognized the likely limited use of UAS in agriculture. The FAA did not expect that UAS would be used to apply pesticides or fertilizers, but UAS can be used to monitor application and yields. UAS may be employed to collect data on the hydration and general condition of crops. The information gathered allows farmers to manage water, insecticide application, and nutrient application. These more efficient uses of resources save agricultural investment, increase productivity, and may even have a positive impact on the environment.[19]

C. Law Enforcement

Law enforcement uses of UAS are of particular interest to CellAntenna.[20] In considering use of UAS in law enforcement and disaster recovery and relief, the FAA recognized the significant cost savings to federal, state, and local governmental entities. Cost savings, as compared to deployment of helicopters, runs up to $550/hour of governmental funds. While not all helicopter missions may be replaced with UAS missions, the cost savings of substitution may be significant. Additionally, the speed to deployment, the stealth capabilities, and the safety aspects of UAS substitution bring significant benefit to the public.[21]

D. Bridge Inspections

In considering use of UAS in bridge inspections, the FAA noted that it is difficult for helicopters to get close enough to bridges for adequate inspection. Expensive, special equipment must be deployed, and often human beings climb the bridges to view bridge conditions up close. Use of UAS in bridge inspections bring cost savings and safety benefits.[22]

E. FAA Precedent

Even before the FAA conducted its analysis of the public interest benefits of commercial deployment of UAS, the FAA recognized its benefits. In granting the dozens of exemptions granted so far, the FAA found that UAS operations significantly improve safety and reduce risk by alleviating the public's exposure to danger and emissions associated with traditional aircraft and helicopter operation. CellAntenna's proposed operations will be battery powered avoiding the ignition hazards attendant to fuel-powered operations. The FAA has recognized that accidents involving UAS are significantly less dangerous -- to pilots and the public -- than accidents involving full-size helicopters.

CellAntenna's proposed operations are similar to the operations proposed in the dozens of exemptions granted by the FAA. Particularly, in the recent grant to Jeffrey J. Walsh,[23] the FAA noted that the enhanced safety achieved using an unmanned aircraft (UA), as proposed by Mr.

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[19] *Id.,* at 18
[20] CellAntenna's long service to law enforcement agencies is documented, in part, in its efforts to eradicate contraband wireless devices from correctional facilities in FCC Docket No. 13-111.
[21] OAPP Regulatory Evaluation, at 18-20
[22] *Id.,* at 22-23
[23] Jeffrey J. Walsh, Docket No. FAA-2014-0681, granted March 24, 2015.

Walsh and CellAntenna, 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 [Mr. Walsh's] exemption is in the public interest.

F. Federal Register Summary

CellAntenna notes that the relief requested in this petition is identical to the exemption granted to dozens of other petitioners. Pursuant to Section 11.87 of the FAA's rules, CellAntenna asks that the FAA forego publication of its petition in the FEDERAL REGISTER. If the FAA determines that FEDERAL REGISTER publication is necessary, CellAntenna provides the following summary for publication in the FEDERAL REGISTER.

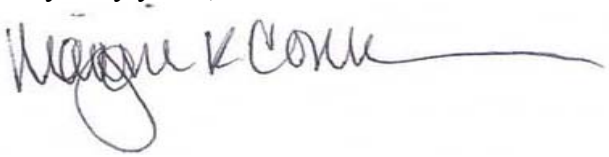
> CellAntenna seeks an exemption from the several provisions of Title 14 of the Code of Federal Regulations. Specifically:
>
> Part 21, Subpart H; Part 27; Sections 45.23(b); 45.27(a); 61.113; 91.7(a); 91.9(b)(2); 91.9(c); 91.103; 91.105; 91.109(a); 91.119; 91.121; 91.151(a); 91.203(a) and (b); 91.405(a); 91.407(a)(1); 91.409(a)(1) and (2); 91.417(a) and (b).
>
> The requested exemption will enhance public safety by reducing risk to the general public and property owners from the substantial hazards associated with performing equivalent work with conventional fixed-wing aircraft, rotorcraft, or other methods.

G. Conclusion

CellAntenna's Petition for exemption satisfies the criteria articulated in Section 333 of the Reform act, including size, weight, speed, and operational capability, proximity to airports and populated areas, operation within VLOS and national security. The proposed UAS operations will benefit the public as a whole by improving safety and reducing risk by alleviating human exposure to danger. In consideration of the foregoing, this Petition for Exemption provides the FAA with sufficient justification for grant of the request allowing CellAntenna to perform commercial operations using UAS.

CellAntenna appreciates your prompt consideration of its Petition. Should questions arise, please give me a call to discuss.

Very truly yours,



Marjorie K. Conner
Counsel to CellAntenna Corporation

Attachment A: CellAntenna Manual
Attachment B: UAS Manual

Attachments contain proprietary and commercial information and are exempt from disclosure under the Freedom of Information Act, 5 U.S.C. § 552, *et. seq.,* and should be held in a separate confidential file in accord with Section 11.35(b) of the FAA's rules, 14 C.F.R. § 11.35(b).

Confidential Attachment A
CellAntenna Manual

Confidential Attachment B
UAS Manual

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
CERTIFICATE OF WAIVER OR AUTHORIZATION

ISSUED TO
CellAntenna Corporation

700 West View Terrace
Alexandria, VA 22302

This certificate is issued for the operations specifically described hereinafter. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate, and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate.

OPERATIONS AUTHORIZED

Operation of DJI S1000 Spreading Wings, DJI Inspire, DJI 450 Flame Wheel Quadcopter, and DJI 550 Flame Wheel Hexacopter Unmanned Aircraft Systems at or below 200 feet Above Ground Level (AGL) for the purpose of aerial data collection.

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE
N/A

STANDARD PROVISIONS

1. A copy of the application made for this certificate shall be attached and become a part hereof.
2. This certificate shall be presented for inspection upon the request of any authorized representative of the Federal Aviation Administration, or of any State or municipal official charged with the duty of enforcing local laws or regulations.
3. The holder of this certificate shall be responsible for the strict observance of the terms and provisions contained herein.
4. This certificate is nontransferable.

Note-This certificate constitutes a waiver of those Federal rules or regulations specifically referred to above. It does not constitute a waiver of any State law or local ordinance.

SPECIAL PROVISIONS

Special Provisions are set forth and attached.

This certificate FAA-2015-1010-333E is effective from June 23, 2015 to June 30, 2017 and is subject to cancellation at any time upon notice by the Administrator or his/her authorized representative.

BY DIRECTION OF THE ADMINISTRATOR

/S/

FAA Headquarters, AJV-115	Jacqueline R. Jackson
(Region)	(Signature)
June 15, 2015	Manager, UAS Tactical Operations Section
(Date)	(Title)

FAA Form 7711-1 (7-74)

STANDARD PROVISIONS

A. **General.**

1. The approval of this COA is effective only with an approved FAA Grant of Exemption.

2. A copy of the COA including the special limitations must be immediately available to all operational personnel at each operating location whenever UAS operations are being conducted.

3. This authorization may be canceled at any time by the Administrator, the person authorized to grant the authorization, or the representative designated to monitor a specific operation. As a general rule, this authorization may be canceled when it is no longer required, there is an abuse of its provisions, or when unforeseen safety factors develop. Failure to comply with the authorization is cause for cancellation. The operator will receive written notice of cancellation.

B. **Safety of Flight.**

1. The operator or pilot in command (PIC) is responsible for halting or canceling activity in the COA area if, at any time, the safety of persons or property on the ground or in the air is in jeopardy, or if there is a failure to comply with the terms or conditions of this authorization.

See-and-Avoid

Unmanned aircraft have no on-board pilot to perform see-and-avoid responsibilities; therefore, when operating outside of active restricted and warning areas approved for aviation activities, provisions must be made to ensure an equivalent level of safety exists for unmanned operations consistent with 14 CFR Part 91 §91.111, §91.113 and §91.115.

a. The pilot in command (PIC) is responsible:

- To remain clear and give way to all manned aviation operations and activities at all times,
- For the safety of persons or property on the surface with respect to the UAS, and
- For compliance with CFR Parts 91.111, 91.113 and 91.115

b. UAS pilots will ensure there is a safe operating distance between aviation activities and unmanned aircraft (UA) at all times.

c. Visual observers must be used at all times and maintain instantaneous communication with the PIC.

d. The PIC is responsible to ensure visual observer(s) are:

- Able to see the UA and the surrounding airspace throughout the entire flight, and
- Able to provide the PIC with the UA's flight path, and proximity to all aviation activities and other hazards (e.g., terrain, weather, structures) sufficiently for the PIC to exercise effective control of the UA to prevent the UA from creating a collision hazard.

e. Visual observer(s) must be able to communicate clearly to the pilot any instructions required to remain clear of conflicting traffic.

2. Pilots are reminded to follow all federal regulations e.g. remain clear of all Temporary Flight Restrictions, as well as following the exemption granted for their operation.

3. The operator or delegated representative must not operate in Prohibited Areas, Special Flight Rule Areas or, the Washington National Capital Region Flight Restricted Zone. Such areas are depicted on charts available at http://www.faa.gov/air_traffic/flight_info/aeronav/. Additionally, aircraft operators should beware of and avoid other areas identified in Notices to Airmen (NOTAMS) which restricts operations in proximity to Power Plants, Electric Substations, Dams, Wind Farms, Oil Refineries, Industrial Complexes, National Parks, The Disney Resorts, Stadiums, Emergency Services, the Washington DC Metro Flight Restricted Zone, Military or other Federal Facilities.

4. All aircraft operated in accordance with this Certificate of Waiver/Authorization 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.

C. **Reporting Requirements**

1. Documentation of all operations associated with UAS activities is required regardless of the airspace in which the UAS operates. NOTE: Negative (zero flights) reports are required.

2. The operator must submit the following information through mailto:9-AJV-115-UASOrganization@faa.gov on a monthly basis:
   a. Name of Operator, Exemption number and Aircraft registration number
   b. UAS type and model
   c. All operating locations, to include location city/name and latitude/longitude
   d. Number of flights (per location, per aircraft)
   e. Total aircraft operational hours
   f. Takeoff or Landing damage

g. Equipment malfunctions. Reportable malfunctions include, but are not limited to the following:

(1) On-board flight control system

(2) Navigation system

(3) Powerplant failure in flight

(4) Fuel system failure

(5) Electrical system failure

(6) Control station failure

3. The number and duration of lost link events (control, performance and health monitoring, or communications) per UA per flight.

D. **Notice to Airmen (NOTAM).**

A distant (D) NOTAM must be issued when unmanned aircraft operations are being conducted. This requirement may be accomplished:

a. Through the operator's local base operations or NOTAM issuing authority, or

b. By contacting the NOTAM Flight Service Station at 1-877-4-US-NTMS (1-877-487-6867) not more than 72 hours in advance, but not less than 24 hours prior to the operation, unless otherwise authorized as a special provision. The issuing agency will require the:

(1) Name and address of the pilot filing the NOTAM request

(2) Location, altitude, or operating area

(3) Time and nature of the activity.

(4) Number of UAS flying in the operating area.

AIR TRAFFIC CONTROL SPECIAL PROVISIONS

A. **Coordination Requirements.**

1. Operators and UAS equipment must meet the requirements (communication, equipment and clearance) of the class of airspace they will operate in.

2. Operator filing and the issuance of required distance (D) NOTAM, will serve as advance ATC facility notification of UAS operations in an area.

3. Operator must cancel NOTAMs when UAS operations are completed or will not be conducted.

4. Coordination and deconfliction between Military Training Routes (MTRs) is the operator's responsibility. When identifying an operational area the operator must

evaluate whether an MTR will be affected. In the event the UAS operational area overlaps (5 miles either side of centerline) an MTR, the operator will contact the scheduling agency 24 hours in advance to coordinate and deconflict. Approval from the scheduling agency is not required. Scheduling agencies are listed in the Area Planning AP/1B Military Planning Routes North and South America, if unable to gain access to AP/1B contact the FAA at email address mailto:9-AJV-115-UASOrganization@faa.gov with the IR/VR routes affected and the FAA will provide the scheduling agency information. If prior coordination and deconfliction does not take place 24 hours in advance, the operator must remain clear of all MTRs.

B. **Communication Requirements.**

1. When operating in the vicinity of an airport without an operating control tower, announce your operations in accordance with the FAA Aeronautical Information Manual (AIM) 4-1-9 Traffic Advisory Practices at Airports without Operating Control Towers.

C. **Flight Planning Requirements.**

Note: For all UAS requests not covered by the conditions listed below, the exemption holder may apply for a new Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA) at https://oeaaa.faa.gov/oeaaa/external/uas/portal.jsp

This COA will allow small UAS (55 pounds or less) operations during daytime VFR conditions under the following conditions and limitations:

(1) At or below 200 feet AGL; and

(2) Beyond the following distances from the airport reference point (ARP) of a public use airport, heliport, gliderport, seaplane base and military airports listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications.

a) 5 nautical miles (NM) from an airport having an operational control tower; or

b) 3 NM from an airport having a published instrument flight procedure, but not having an operational control tower; or

c) 2 NM from an airport not having a published instrument flight procedure or an operational control tower; or

d) 2 NM from a heliport, gliderport or seaplane base

D. **Emergency/Contingency Procedures.**

1. Lost Link/Lost Communications Procedures:

- 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 and land.

- The PIC must abort the flight in the event of unpredicted obstacles or emergencies.

2. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries defined in this COA must be reported to the FAA via email at mailto:9-AJV-115-UASOrganization@faa.gov within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: **www.ntsb.gov**

AUTHORIZATION

This Certificate of Waiver or Authorization does not, in itself, waive any Title 14 Code of Federal Regulations, nor any state law or local ordinance. Should the proposed operation conflict with any state law or local ordinance, or require permission of local authorities or property owners, it is the responsibility of the operator to resolve the matter. This COA does not authorize flight within Special Use airspace without approval from the scheduling agency. The operator is hereby authorized to operate the small Unmanned Aircraft System in the National Airspace System.