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

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

May 5, 2015

Exemption No. 11468
Regulatory Docket No. FAA–2015–0259

Mr. Brandon Schulz
Manager
United Dynamics AT Technologies Corp.
2681 Coral Ridge Road
Brooks, KY 40109

Dear Mr. Schulz:

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.

The Basis for Our Decision

By letter dated January 30, 2015, you petitioned the Federal Aviation Administration for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct aerial videography/cinematography to enhance safety and reliability of power generation utilities.

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 DJI S800 Hex-rotor.

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, Mr. Brandon Schulz 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, Mr. Brandon Schulz 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 S800 Hex-rotor 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 April, 30, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/
John S. Duncan
Director, Flight Standards Service

January 30, 2015

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

Re: Exemption Request Section 333 of the FAA Reform Act of the Federal Aviation Regulations from 14 C.F.R. 45.23(b); 14 C.F.R. Part 21; 14 C.F.R. 61.113(a)&(b); 91.7(a); 91.9(b) (2); 91.103(b); 91.109; 119.121; 91.151(a); 91.203(a)&(b); 91.405(a); 91.407(a) (1); 91.409(a) (2); 91.417(a)&(b)

Dear Sir or Madam,

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

As described herein I, Brandon Schulz, am a Private Pilot, UAS Pilot, and inspector for Fossil and Renewable Power Generation Facilities (read: no Nuclear Power Plants). I have built, maintained, and flown remote control helicopters for 15 years and served as a flight instructor in multiple recreational flying clubs. I have added a hobby grade hex-rotor helicopter[1] UAS to my inventory equipped with a Sony camera with intent for aerial videography/cinematography to enhance safety and reliability of Power Generation Utilities; following exemption and approval by the FAA. Thereby enhancing their safety and reducing costs and environmental impacts caused by lack of inspection and maintenance.

I have flown RC helicopters for over fifteen (15) years without incident. I have logged over 3 years of experience with this specific model[1.] Committed to safety with each flight. My, Brandon Schulz's, exemption request would permit operation of ultra light weight, unmanned (piloted by remote control) and comparatively inexpensive UAS(s) in limited airspace.[2]
The inherent regulated safety culture within Fossil and Renewable Power Generation Utilities provides an ideal ground for preplanned, safe, and controlled UAS inspections. Currently, similar lightweight, remote controlled UAS's are legally operated by amateur hobbyists under FAA and AMA guidelines with a high level of safety. I, Brandon Schulz, have personally instilled safety

[1] Appendix A - DJI S800 Operator Manual
[2] Appendix B - Airspace Example

protocols and controls[3] to avoid and prevent public hazard, as well as manned aircraft hazards/catastrophe. This will act to further safety protocols exclusive to lightweight UAS's specific to Fossil and Renewable Power Generation Utility inspection usage as I, Brandon Schulz, record flight data and other information gained through permitted flight operations to share with the FAA through any required FAA reports to assist with future protocol and safety regulation.

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

For the reasons stated below I, Brandon Schulz, respectfully request the grant of an exemption allowing me to operate ultra light weight, remote controlled UAS's for the inspection of Fossil and Renewable Power Generation Utilities to enhance public safety and the safety of Fossil and Renewable Power Generation Utility employees. This exemption, if granted, will benefit the public through increased safety, lower Environmental impacts, and lower energy costs.

I. Contact Information:

Brandon Schulz, Manager
United Dynamics AT Technologies Corp.
2681 Coral Ridge Rd.
Brooks, KY 40109
Cell: 414-587-4547
Office: 502-957-7525

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

14 CFR 21;
14 C.F.R. 45.23(b);
14 CFR 61.113 (a) & (b);
14 C.F.R. 91, et seq.;
14 CFR 407 (a) (1);
14 CFR 409 (a) (2); and,
14 CFR 417 (a) & (b).

[3] Appendix C - Personal Protocols and Controls

III. The Extent of relief Brandon Schulz seeks and the Reason He Seeks Such Relief:

I, Brandon Schulz, submit this application in accordance with the Reform Act, 112 P.L. 95 §§ 331-334, seeking relief from any currently applicable FARs operating to prevent me, Brandon Schulz, contemplated commercial inspection, safety and other flight operations within the NAS. The Reform Act in Section 332 provides for such integration of civil unmanned aircraft systems into our national airspace system as it is in the public's interest to do so. My, Brandon Schulz's, ultra light weight UAS meets the definition of "small unmanned aircraft" as defined in Section 331 and therefore the integration of my ultra light weight UAS is expressly contemplated by the Reform Act. I would like to operate my ultra light weight UAS prior to the time period by which the Reform Act requires the FAA to promulgate rules governing such craft. Thereby, providing direct experience and valuable information for formal regulation that can be administered uniformly to all inspections related to UAS aerial video and photography. The Reform Act guides the Secretary in determining the types of UAS's that may operate safely in our national airspace system. Considerations include: The weight, size, speed and overall capabilities of the UAS's; Whether the UAS will be operated near airports or heavily populated areas; and, Whether the UAS will be operated by line of sight. 112 P.L. 95 § 333 (a). Each of these items reflect in favor of an exemption for me, Brandon Schulz. My UAS utilizes six (6) counter-rotating propellers for balance, control and stability. My UAS is equipped with GPS and auto return safety technology. Weighing less than fifteen (15) pounds (far below the maximum 55 pound limit); including camera with gimbal.

I, Brandon Schulz, considers safety as foremost with each flight. Every flight is carefully planned for the specific task before any operations take place. This planning identifis any risks and take in account the airspace to be operated in, flight path, public safety, personal safety, maintenance records, and a preflight check of the UAS. My small unmanned aircraft is designed to hover in place via GPS and operate in less than a 24 knot wind. For safety, stability and fear of financial loss I will not fly in winds exceeding my personal safety maximums and aircraft design). Built in safety systems include a GPS mode that allows my UAS to hover in place when radio controls are released. With three modes to choose from. This provides the safest, most reliable and stable platform to prevent accident and hazard. When pilot communication is lost the UAS has an integrated failsafe that allows it to slowly descend to point of take off. I do not operate my UAS near airports, Hospitals, nor Police heliports, and do not operate near areas where general public is within fifty to one hundred (50-100) yards depending on location, conditions and weather. Every flight is preplanned and run through a safety check to ensure the general public and other aircraft would not be a risk factor. I am constantly on alert for any manned aircraft (Police/Medical helicopters, GA, AG, Commercial etc.) and prepared to land/abort immediately to the nearest and safest ground point should a manned aircraft approach my location or I suspect manned aircraft may approach near my location. In addition, I always fly with a "spotter" for an addition level of safety. The spotter supplements my (the PIC) situational awareness by constantly scanning for other aircraft as well as people. My UAS is capable of vertical and horizontal operations,

and are flown only within my line of sight of me, as the remote control pilot. Utilizing battery power rather than combustible fuels, flights generally last between five (5) to fifteen (15) minutes, with an altitude under one hundred fifty (150) feet AGL, or nor more than 50ft above the structure of inspection. I, Brandon

Schulz, utilize a fresh fully charged battery with each flight. As a safety precaution; every battery is charged and tested utilizing a Battery Management System that tracks battery condition such as capacity, internal resistance, and voltage. Any battery that does not meet its specification after a charge cycle is complete is marked as "not airworthy" and discarded. Full flight time limit for each battery is fifteen (15) to twenty (20) minutes as tested. I do not operate my UAS at or below manufacture recommend minimum charge levels for operation; preferring to remain well within a safe operating range to insure adequate communication between radio control and UAS to eliminate potential for crash, loss of control or hazard. Reserve batteries are at hand with each exercise to insure replacement for sufficient safe level of operation. I do not believe in taking risk that may cause a crash, that could create hazard to the public/property/manned aircraft, and have no desire to lose an investment. I have clocked numerous practice flights in remote areas as a hobbyist simulating flights for future commercial use to gain familiarization with the characteristics of this specific UAS's performance under different temperature and weather conditions. I also practice computerized simulated flights to maintain adequate skills and response reflex time. All for the sake of safety.

I, Brandon Schulz, am extremely cautious when operating of my UAS/ultra light weight unmanned aircraft and will not “create a hazard to users of the national airspace system or the public.” 112 P.L. 95 § 333 (b). Given the small size and weight of my UAS it falls well within Congress’s contemplated safety zone when it promulgated the Reform Act and the corresponding directive to integrate UAS's into the national airspace system. Douglas Trudeau’s UAS, used in hobby flight, has a demonstrable safety record and does not pose any threat to the general public or national security.

IV. How Brandon Schulz's Request Will Benefit the Public As A Whole:

Fossil and Renewable Power Generation Utilities own and operate thousands of components that require periodic inspections to meet industry standards. These components are often hazardous in nature due to their location or the materials and compounds that they contain. Historically the only way to visually inspect these components was by means of putting a human, with a camera, in harm's way. Dangerous man lifts, buggies, suspended scaffolding, and commercial manned helicopters are often used. In many cases the inspections are limited or delayed due to safety and cost. My ultra light UAS provides the utilities with an inspection that does not put humans in harm's way. It allows the components to be inspected without

combustible fuels or putting human life at risk. In addition, the public benefits from my UAS inspecting Power Generation Utilities due to the inherit safety that is required on all plant sites. These locations utilize safety measure from OSHA, NFP, and the NSC by training all personal on site before work is conducted. All plant sites are security controlled locations with limited access. Safety training is required for every individual on site as well as Personal Protective Equipment such as hard hats, safety glasses, proper clothing, and steel toed boots. Inspections of components are isolated from the personnel on site by means of a "sterile area". Barricades with appropriate signage restricts any person from entering the inspection area. This provides a safety blanketed environment to integrate UAS operations. As an added measure of safety, Fossil and Renewable Power Generation Facilities are also marked on Sectional Charts to provide a blanketed level of awareness to all aircraft operating in that airspace *in addition to* the COA and NOTAM that would be required before UAS operations.

Congress has already proclaimed that it is in the public's interest to integrate commercially flown UAS's into the national airspace system, hence the passing of the Reform Act. Granting my, Brandon Schulz's, exemption request furthers the public interest through safety inspections, environmental inspections, and preventive maintenance inspections of Fossil and Renewable Power Generation Utilities. My ultra light weight UAS is battery powered and creates no emissions that can harm the environment. The consequence of my ultra light weight UAS crashing is far less than a full size helicopter or fixed wing aircraft; which are heavy, contain combustible fuel and can cause catastrophic devastation to the public.

The public's interest is furthered by minimizing ecological and crash threat by permitting aerial video/photo capture through my battery operated ultra light weight UAS's. Permitting me, Brandon Schulz, to immediately fly within national air space furthers economic growth. Granting my exemption request substantially furthers the economic impact for the entire United States of America.

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

My, Brandon Schulz's, exemption will not adversely affect safety. Quite the contrary, for the reasons stated permitting me, Brandon Schulz, to log more flight time in the NAS, in communication with the FAA, will allow me to contribute to the innovation and implementation of new and novel, as of yet undiscovered safety protocols for UAS that can embraced by the FAA for development cooperation. In addition I, Brandon Schulz, submit the following representations of enhancements to current Fossil and Renewable Power Generation Utilities inspections.

- My UAS operations would only be performed in secured and sterile locations for safety.
- My UAS operations would prevent any person (except for myself and the spotter) from entering the sterile flight area.
- Anyone inside or outside the sterile flight area would be wearing full Personal Protective Equipment
- My UAS weighs less than 15 pounds complete with a small ultra light weight high quality Sony camera;
- I only operate my UAS below 200ft AGL or less than 50ft above the highest structure;
- my UAS only operate for 5-15 minutes per flight;
- I land my UAS prior to manufacturer recommended minimum level of battery power;
- I pilot my UAS through remote control only by line of sight with additional help from a spotter;
- My UAS has GPS a flight safety feature whereby it hovers and then slowly lands if communication with the remote control pilot is lost;
- I actively analyze flight data and other sources of information to constantly update and enhance safety protocols;
- I only operate in reasonably safe environment that are strictly controlled and are not near airports (unless permission is given) and actively populated areas;
- I conduct extensive pre-flight inspections and protocol, during which safety carries primary importance;
- I always obtains all necessary permissions prior to operation; and,
- I have procedures in place to abort flights in the event of safety breaches or potential danger.

My, Brandon Schulz's, safety protocols provide a level of safety equal to or exceeding existing rules. It is important to note that absent to the integration of commercial UAS into our national airspace system, helicopters and aerial man lifts are the primary means of inspection. While the safety record of these procedures remarkably strong, there has been injuries and loss of life due to humans being subjected to these calculated risks; it is far safer to operate a battery powered ultra light weight UAS.

- First, the potential loss of life is diminished because UAS's carry no people on board and I only operates my UAS in specific areas away from mass populations.
- Second, there is no liquid fuel on board a UAS and thus the potential for fire or explosions is greatly diminished.
- Third, the small size and extreme maneuverability of my UAS allow me to remotely pilot away from and avoid hazards quickly and safely.
- Forth, the safety blanketed environment of Fossil and Renewable Power Generation Utilities (Required safety training, barricades, hard hats, proper clothing, secure sites, limited access) is a perfect environment to integrate UAS safety into the NAS.
- Lastly, given its small size and weight, even when close enough to capture amazing images, my UAS need not be so close to the objects they are focused on through the technology and use of post editing software allowing pan and zoom.

Accordingly, my UAS has been experimentally operated for familiarization/competency and will continue to operate at and above current safety levels.

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

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

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

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

14 C.F.R. § 91.9 (b) (2) requires an aircraft flight manual in the aircraft. As there are no on board pilots or passengers, and given the size of the UAS's, this Regulation is inapplicable. An equivalent level of safety will be achieved by maintaining a

safety/flight manual delineating areas of where safety can be defined.[4] The FAA has previously issued exemptions to this regulation in Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167, 10167A, 10602, 10700 and 32827.

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

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

B. 14 C.F.R. § 45.23: Marking of The Aircraft.

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

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

Pursuant to 14 C.F.R. §§ 61.113 (a) & (b), private pilots are limited to non-commercial operations. I, Brandon Schulz, can achieve an equivalent level of safety as achieved by current Regulations because my UAS does not carry any pilots or passengers. Furthermore, my Private Pilot License and associated NAS knowledge have given me the means to understand the NAS and FAR's associated with all operations in the NAS and hold my operations to an equal, or higher, safety standard. The risks attended to the operation of my UAS is far less than the risk levels inherent in the commercial activities outlined in 14 C.F.R. § 61, et seq. Thus, allowing me, Brandon Schulz, to operate my UAS meet and exceed current safety levels in relation to 14 C.F.R. §61.113 (a) & (b).

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

14 C.F.R. § 91.119 prescribes safe altitudes for the operation of civil aircraft. It allows helicopters to be operated at lower altitudes in certain conditions. My UAS will never operate at an altitude greater than 200ft AGL or 50ft above the tallest structure. I, Brandon Schulz, will operate my UAS in safe areas away from congested areas, the public, and traffic; providing a level of safety at least equivalent to or below those in relation to minimum safe altitudes. Given the size, weight, maneuverability and speed of my UAS, an equivalent or higher level of safety will be achieved.

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

[4] Appendix E - Safety/Flight Manual

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

These Regulations only apply to aircraft with an airworthiness certificate. They will not, therefore, apply to my, Brandon Schulz's, UAS. However, as a safety precaution I inspect my UAS before and after each flight. Maintenance logs and flights logs will be kept on record and with the aircraft.

A Summary The FAA May Publish in the Federal Register: A. 14 C.F.R. 21 and 14 C.F.R. 91: Airworthiness Certificates, Manuals and The Like. 14 C.F.R. 21, Subpart H, entitled Airworthiness Certificates, sets forth requirements for procurement of necessary airworthiness certificates in relation to FAR § 91.203(a)(1). The size, weight and enclosed operational area of my UAS permits exemption from Part 21 because my, Brandon Schulz's, UAS meets an equivalent level of safety pursuant to Section 333 of the Reform Act. The FAA is authorized to exempt aircraft from the airworthiness certificate requirement under both the Act (49 U.S.C. § 44701 (f)) and Section 333 of the Reform Act. Both pieces of legislation permit the FAA to exempt UAS's from the airworthiness certificate requirement in consideration of the weight, size, speed, maneuverability and proximity to areas such as airports and dense populations. My UAS meets or exceeds each of the elements. 14 C.F.R. 91.7(a) prohibits the operation of an aircraft without an airworthiness certificate. As no such certificate will be applicable in the form contemplated by the FARs, this Regulation is inapplicable. 14 C.F.R. § 91.9 (b) (2) requires an aircraft flight manual in the aircraft. As there are no pilots or passengers, and given the size of the UAS's, this Regulation is inapplicable. An equivalent level of safety will be achieved by maintaining a manual. The FAA has previously issued exemptions to this regulation in Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167, maintenance program that involves regular software updates and curative measures for any damaged hardware. Therefore, an equivalent level of safety will be achieved.

In summary, Brandon Schulz seeks an exemption from the following Regulations:

14 C.F.R. 21, subpart H; 14 C.F.R. 45.23(b); 14 C.F.R. §§ 61.113 (a) & (b); 14 C.F.R. § 91.7 (a); 14 C.F.R. § 91.9 (b)(2); 14 C.F.R. § 91.103(b); 14 C.F.R. § 91.109; 14 C.F.R. § 91.119; 14 C.F.R. § 91.121; 14 C.F.R. § 91.151(a); 14 C.F.R. §§ 91.203(a) and (b); 14 C.F.R. § 91.405 (a); 14 C.F.R. § 91.407 (a)(1); 14 C.F.R. § 91.409 (a)(2); 14 C.F.R. § 91.409 (a) (2); and, 14 C.F.R. §§ 91.417 (a) & (b) to commercially operate my, Brandon Schulz's, small unmanned vehicle/lightweight unmanned aircraft vehicle in Power Generation Utility inspection operations at an equal or higher level of safety congruent to these regulations.
Currently, Fossil and Renewable Power Generation Utility inspections require use of larger aircraft running on combustible fuel or aerial man lifts. Granting my, Brandon Schulz's, request for exemption will reduce current risk levels and thereby enhance safety. My UAS craft do not contain potentially

explosive fuel, is smaller, lighter and more maneuverable than conventional manned helicopters. Further, I operate at lower altitudes and in limited airspace eliminating potential public risk flying to and from established air fields. I, Brandon Schulz, have been informally analyzing flight information and will compile safety protocols and the implementation of a flight operations manual for Fossil and Renewable Power Generation Utility inspection usage that exceeds currently accepted means and methods for safe flight. Formal collection of information shared with the FAA will enhance the FAA's internal efforts to establish protocols for complying with the FAA Modernization and Reform Act of 2012. There are no personnel on board my, Brandon Schulz's, UAS and therefore the likelihood of death or serious bodily injury is significantly diminished. My, Brandon Schulz's, operation of my UAS, weighing less than 15 pounds and travelling at lower speeds within limited areas will provide an equivalent level of safety as that achieved under current FARs. Accordingly I, Brandon Schulz, respectfully request that the FAA grant my exemption request and am willing to cooperate in sharing information to benefit the FAA, safety of manned aircraft, and the general public at large.

Respectfully submitted,

Brandon Schulz, Manager

United Dynamics and AT Corp.

2681 Coral Ridge Rd.

Brooks, KY 40109

Appendix A

DJI S800 Hex-rotor

Operator Manual

URL Below
http://download.dji-innovations.com/downloads/s800/S800_User_Manual_en.pdf

Hyper Link Below
S800 Manual

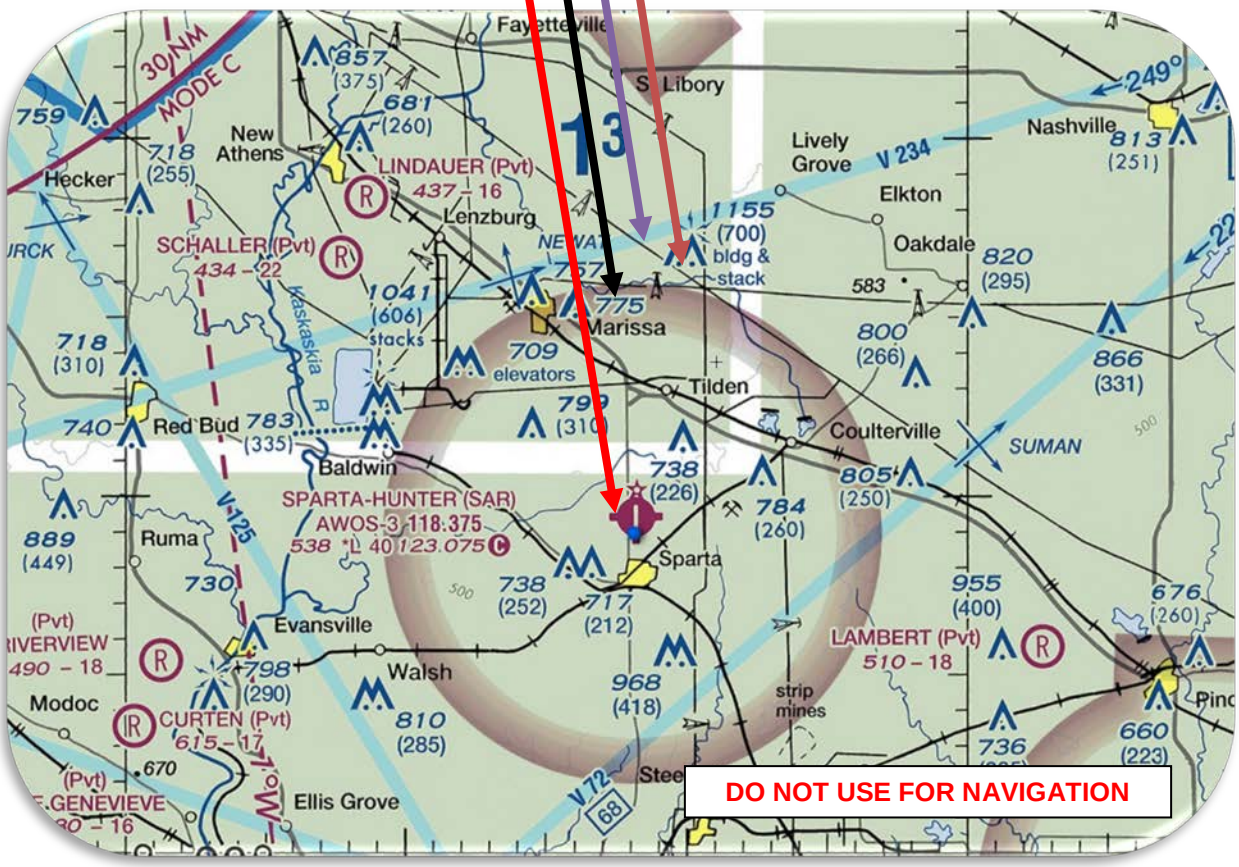
Appendix B

Airspace
Example

Fossil Power Generation Utility
Airspace Example*

*This example is intended as a theoretical sample only and does not identify all hazards and risks but rather points out a select few that may be considered before a UAS flight is considered. Educational purposes only. Do not use for navigation.

Identifier	Consideration
Fossil Power Generation Facility--	Use to Identify exact location for NOTAM
Victor Airway 234----------	Be aware of aircraft on Victory Airway 234
Transition Area----------	Be aware of aircraft on long final for RWY18
Public Airport KSAR-----	Notify Airport/Distance >5sm



Brandon Schulz, Private Pilot/UAS Pilot/Inspector, UDC Brooks, KY

Appendix C

Brandon Schulz

Personal Protocols and Controls

Protocols and Controls

Fossil and Renewable Power Generation Facilities

Safety for public on the ground as well as manned aircraft above is an essential and utmost consideration for aerial videos and photography. As such, safety protocols and controls must be implemented through pre-flight preparation and during flight.

Pre-Flight Protocol:

- Obtain any NOTAMs, TFR's, etc before flight.
- Check batteries with Battery Management System to insure fully charge.
- Inspect batteries for damage or leakage that may affect proper operation.
- Inspect propellers for cracks, chips or damage that may cause sudden loss of propulsion or unmanageable/uncontrolled flight.
- Consult Sectional Charts to identify airspace and location.
- Obtain a weather briefing for the flight area.
    - Contact any local airports to advise of estimated flight time, estimated flight duration, estimated elevation of flight in addition to filing for a NOTAM.
- Inspect flight area for
    - vicinity of public safety helipads/heliports
    - vicinity of medical helipads/heliports
    - vicinity of light poles
    - vicinity or utility wires
    - vicinity of trees
    - flocks of birds that may cause interference and potential flight impact
    - vicinity of any elevated obstructions that may pose potential flight hazard
    - vicinity of roadways with moderate to heavy traffic that can be distracted
    - public gatherings that may attract viewers
    - optional point of control for best visual site of UAS while in flight
- Takeoff and landing
    - inspect area for best and safest point of takeoff and landing
    - Erect a barricade that is consistent with plant site restricted space and post signage.

Flight Protocol:

- takeoff and land from same location
- remain alert to birds, sound or aircraft, curious public, and approaching vehicles
- do not allow anyone to engage in conversation or distract the remote control pilot
- restrict flight to minimal elevation sufficient to acquire desired results
- remained prepared for emergency landing at all times
- pay attention to flight time
    - Programmed alarm on the pilot's remote and UAS will signal battery levels
- land UAS and shut down propulsion immediately following landing

Post flight:

a. disconnect battery to prevent accidental activation of propulsion system
b. secure UAS in a safe location
c. remove all barricades and signage in accordance with plant site procedures

Emergency or Suspected Hazard:

- Immediate land UAS at safest and closet ground location in the event
  - manned aircraft is heard or seen in vicinity of flight
  - there is a public gathering within established safety boundary wanting to observe flight
  - pilot is being distracted from focusing on flight and safety
  - sudden change in weather
  - sudden increase in vehicular traffic in vicinity of flight
  - birds enter into proximity of flight
  - any sudden unsafe event that can cause collision, distraction or interruption of control

Appendix E

Brandon Schulz

Safety/Flight Manual

Safety Flight Manual

Fossil and Renewable Power Generation Facilities

Safety for public on the ground as well as manned aircraft above is an essential and utmost consideration for aerial videos and photography inspections. Maintaining a record of safe flight for FAA request and for determining future UAS safety protocols is imperative.

Date:_____ Location: _____

Pre-flight Inspection: □ Yes □ No Comment: _____ _____

Elements	(circle)	(circle)	Comment
Ceilings	Go	No Go	
Visibility	Go	No Go	
Wind Speed	Go	No Go	

Proximity to airport: _____ (see attached map pinpointing approximate location of flight)
Airport notified □ Yes □ No Date:_____ Time: _____
Phone Number: _____ Contact Name: _____ _____

Nearest major structure: _____

Proximity to medium traffic road: _____ _____

Proximity to heavily traveled roadway road: _____ _____

Proximity to congested population: _____

Approx. Takeoff Time	
Approx. Landing Time	
Estimated Elevation	

Safety Concerns:

Additional Comments:

Unedited flight video/photos available for FAA upon written request within 180 days of flight: □ Yes □ No