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

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

May 19, 2015

Exemption No. 11625
Regulatory Docket No. FAA–2015–0551

Mr. Christopher Costello
Chief Flight Instructor
DARTdrones, LLC
115 Country Side Lane
Telford, PA 18969

Dear Mr. Costello:

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 February 21, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of DARTdrones, LLC (hereinafter petitioner or operator) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct training for recreational users and emergency services entities to use unmanned aerial vehicles.

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 Phantom, DJI Phantom 2 Vision, and DJI Phantom 2 Vision+.

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, DARTdrones, LLC is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, DARTdrones, LLC is hereafter referred to as the operator.

Failure to comply with any of the conditions and limitations of this grant of exemption will be grounds for the immediate suspension or rescission of this exemption.

1. Operations authorized by this grant of exemption are limited to the DJI Phantom, Phantom 2 Vision, and Phantom 2 Vision+ 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 5 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 May 31, 2017, unless sooner superseded or rescinded.

Sincerely,

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

February 21, 2015

U.S. Department of Transportation
Docket Operations, M-30
1200 New Jersey Avenue, SE
Room W12-140, West Building Ground Floor
Washington, DC 20590-0001

Re: ***Petition of DARTdrones, LLC for an Exemption Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 to Operate an Unmanned Aircraft System***

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the Reform Act) and 14 C.F.R. Part 11, DARTdrones, LLC hereby applies for an exemption from the Federal Aviation Regulations identified below to allow for the commercial operation of the DJI PHANTOM with the NAZA-M V2 Flight Control System, manufactured by DJI Innovations ("the PHANTOM").

I. REGULATIONS FOR WHICH EXEMPTION IS REQUESTED

DARTdrones, LLC requests exemption from the following regulations:

- 14 C.F.R Part 21, Subpart H;
- 14 C.F.R Part 27;
- 14 C.F.R § 45.23(b);
- 14 C.F.R. § 45.27(a);
- 14 C.F.R § 61.113;
- 14 C.F.R § 91.7(a);
- 14 C.F.R § 91.9(b)(2);
- 14 C.F.R § 91.9(c);
- 14 C.F.R § 91.103;
- 14 C.F.R § 91.109(a);
- 14 C.F.R § 91.119;
- 14 C.F.R § 91.121;
- 14 C.F.R § 91.151(a) & (b)
- 14 C.F.R § 91.203 (a) & (b);
- 14 C.F.R § 91.405(a);
- 14 C.F.R § 91.407(a)(l);
- 14 C.F.R § 91.409(a)(2);
- 14 C.F.R § 91.417 (a) & (b).

This petition incorporates the material contained in the DJI PHANTOM User Manual and the V2 Flight Control System User Manual, (together, the "Manuals").

II. STATUTORY AUTHORITY FOR REQUESTED EXEMPTIONS

This petition for exemption is submitted in accordance with Section 333 of the Reform Act. Congress has directed the FAA "to safely accelerate the integration of civil unmanned aircraft systems into the national airspace system." Pursuant to Section 333 of the Reform Act, the FAA Administrator is to permit operation of an unmanned aircraft system where it does not create a hazard to users of the national airspace system (NAS) or the public or pose a threat to national security based on the following considerations:

- The size, weight, speed and operational capability;
- Operation in proximity to airports and populated areas; and
- Operation within visual line of sight of the operator.

Furthermore, the Federal Aviation Act grants the FAA Administrator general authority to grant exemptions from the agency's safety regulations and minimum standards when the Administrator decides a requested exemption is in the public interest. See 49 U.S.C. §§ 106(f), 44701-44716, et seq. A party requesting an exemption must explain the reasons why the exemption: (1) would benefit the public as a whole, and (2) would not adversely affect safety or how it would provide a level of safety at least equal to the existing rules. 14 C.F.R. § 11.81.

III. DESCRIPTION OF DARTDRONES, LLC AND ITS SERVICES

DARTdrones, LLC is a public entity that provides training for unmanned aerial vehicles to recreational users and emergency services entities. Founded by the a thirty year veteran of the Army National Guard, DARTdrones' main priority is to promote safety in the national airspace. Our courses train recreational users and emergency services personnel about how to obey the FAA regulations, how to join the AMA, how to fully understand how to fly a drone, and how to be sure that all safety standards are being met. DARTdrones partners with public entities to ensure they follow FAA regulations to obtain permissions to utilize PHANTOM quadcopter during the course of their operations and then to also provide them with training to ensure safe use while mitigating risk to persons and property. The comapny is headquartered in Scranton, Pennsylvania, and serves customers in multiple cities in the East Coast of the United States including Boston, Philadelphia, and Scranton . Currently, DARTdrones training courses focus on training of the DJI product lines with particular focus on the DJI Phantoms.

DARTdrones' main priority to make sure that new pilots are being safe and understand the FAA laws and safety standards. Currently, in the East Coast, pilots have little or no options on how to learn to fly. Our training courses are affordable for new pilots and speak to all safety issues necessary. We need the 333 Exemption so that we can continue to educate drone pilots on how to be safe. The FAA tells all pilots to be trained, but most new drone operators cannot find a location to be trained. DARTdrones fixes this. We will abide by or teach any FAA rules and can add to the content of our classes if the FAA has particular additional topics that they would like covered. We need to make it less easy for drone pilots to "play dumb" and offer reasonable training courses.

DARTdrones' curriculum is based on a building block learning system comprised of levels. Students are expected to take a Level I three hour course before ever flying their drone. Then, they go home to practice and complete our "homework" where they gradually build up their expertise on the drone. They then come back for Level II to learn more about setting different modes with the drone. This process continues until they are fully prepared to fly completely safely. Each course gives more detailed information about emergency procedures, safety, and the current regulations. We have our students track all of their flight hours and must be at a certain level before advancing to the next course.

We look to set a standard to ensure that every drone pilot has the same level of knowledge, training, and respect for the airspace.

At present, DARTdrones has three co-founders. The contact information for the petitioner, DARTdrones, LLC, is as follows:

Abby Speicher
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Christopher Costello
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(215) 350-0137
chriscostello@dartdrones.com

IV. DESCRIPTION OF PROPOSED OPERATIONS

DARTdrones, LLC is requesting exemptions from applicable Federal Aviation Regulations (FARs) pursuant to Section 333 of the Reform Act to perform new user UAV training to persons or organizations that employ the PHANTOM series of quadcopters. DARTdrones, LLC training sessions are provided to ensure (i) public and worker safety; (ii) safe, new methods to effectively

employ PHANTOM quadcopters; and (iii) ensure operators employing PHANTOM quadcopters are fully aware of all FAA governing regulations. The exemption will enhance safety by reducing risk to the operator, the general public and property owners from the substantial hazards associated with new Phantom pilots.

Currently there have been numerous reportings of incidents involving small unmanned aerial systems (sUAS). These have created considerable anxiety for local public communities and the FAA in general. DARTdrones will use the latest information leveraging its skills resources and the FAA's website knowbeforeyoufly.com to make sure that UAV pilots are aware of all safety controls and FAA regulations.

DARTdrones recognizes the enormous potential of sUAS but also recognizes the need for due diligence and responsibility on the part of the persons that will fly the sUAS to ensure the safety of the National Airspace (NAS) with respect to manned aircraft. DARTdrones will assist with the integration of sUAS into the NAS by educating users on this new technology. DARTdrones is seeking this exemption to ensure that recreational user and public entities have a reasonable option for getting trained on a PHANTOM.

DARTdrones' mission statement is to help promote the protection of the NAS through education and training of new sUAS users.

DARTdrones' classes are taught in a step-by-step progression where the user has indoor training followed by outdoor flight training. It is based on the military model of classroom instruction, trainer demonstration, and user hands on performance. Understanding and proficiency is determined by knowledge and proficiency testing.

Instruction includes the following:

- FAA regulations.
- Limitations and restrictions of where and when users can fly.
- Liability of flying irresponsibly.
- Pre, during, and post flight check lists.
- Benefits of Academy of Model Aeronautics membership.
- Details user types to include commercial, public, and recreational.
- Provides information on no fly zones and how to identify them.
- Review of knowbeforeyoufly.com.

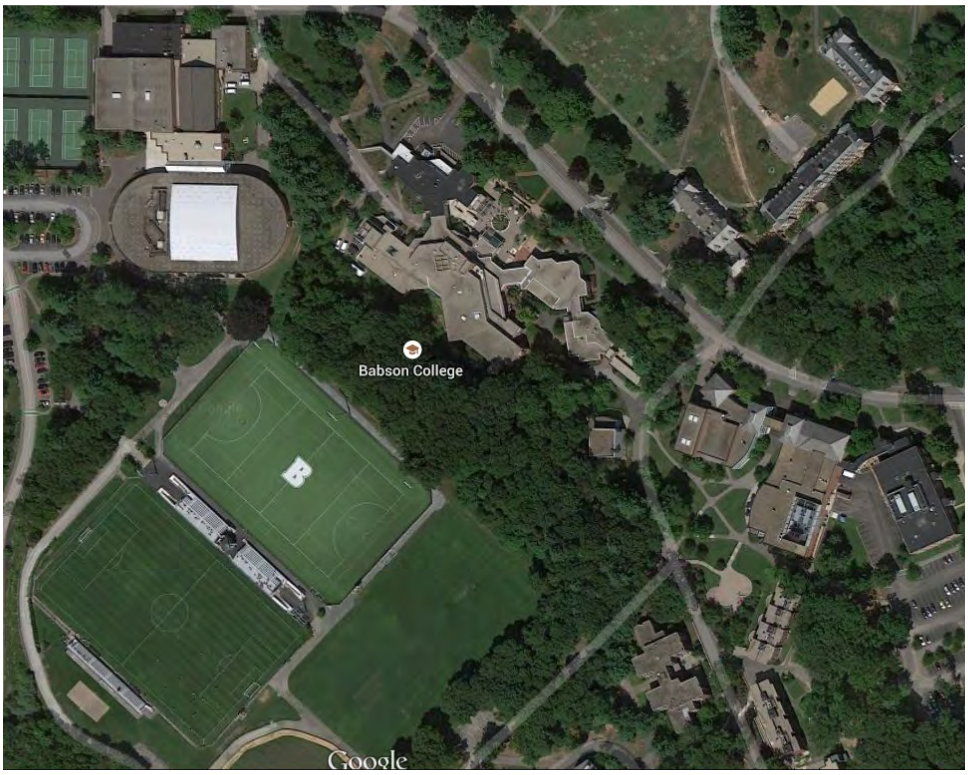
The training sessions will take place in various locations throughout the East Coast located in Scranton, PA, Philadelphia, PA, and Boston, MA. The sites are publically owned and are reserved to accommodate sUAS training. The training sites are located in small parks and training takes place over terrain free of any persons or property. Training is conducted at 200 AGL or below. Level I training limits the sUAS height to 100 feet. Level II training limits flight heights to 200 feet. The three sites will focus on sUAS flight training that trains pilot agility and control of the aircraft. The satellite imagery of each site included below confirms that absence of buildings while security at the site during training will include a clearly marked off training area. See Figure 1.

Site No.	Name	Location	Type of Operation
1	Marywood University	City - Scranton County - Lackawanna State - Pennsylvania	New User UAV Training
2	Franconia Community Park	City - Telford County - Montgomery State - Pennsylvania	New User UAV Training
3	Babson College	City – Boston County – State – Massachusetts	New User UAV Training

Figure 1 –Training Site Locations

Marywood University

Franconia Community Park



Babson College

A. The PHANTOM

DARTdrones, LLC will operate the DJI PHANTOM with the Naza-M V2 Flight Control System, manufactured by DJI Innovations (the "PHANTOM"). The PHANTOM is a battery operated quadcopter with a maximum flight time of 25 minutes. The vehicle weighs approximately 2.75 pounds with a maximum takeoff weight of approximately 2.75 pounds. It has fixed landing gear, vibration dampers, small frame air incline and minimalized gimbal mount,

which allows for a 110 degree of view from the camera. Although the vehicle's ground speed has a maximum of 25 mph, it will be operated between 2 and 5 miles per hour, and it will operate at or below 200 feet AGL.

The PHANTOM manufacturer's specifications are shown below in Figure 2. The PHANTOM is shown below in in Figure 3.

Aircraft	
Supported Battery	DJI 5200mAh Li-Po Battery
Weight (Battery & Propellers included) Recommend payload Maximum payload	1242g ≤1300g 1350g
Hovering Accuracy (Ready to Fly)	Vertical: 0.8m; Horizontal: 2.5m
Max Yaw Angular Velocity	200°/s
Max Tiltable Angle	35°
Max Ascent / Descent Speed	Ascent: 6m/s; Descent: 2m/s
Max Flight Speed	15m/s (Not Recommended)
Motor Diagonal Length	350mm
3-axial stabilized Gimbal	
Working Current	Static : 750mA; Dynamic : 900mA
Control Accuracy	±0.03°
Controllable Range	Pitch : –90° - 0°
Maximum Angular Speed	Pitch : 90°/s
Camera	
Operating Environment Temperature	0°C - 40°C
Sensor Size	1/2.3"
Effective Pixels	14 Megapixels
Resolution	4384×3288
HD Recording	1080p30 /1080i60
Recording FOV	110° / 85°
Remote Controller	
Operating Frequency	5.728 GHz - 5.85 GHz
Communication Distance (open area)	CE Compliance: 400m; FCC Compliance: 800m
Receiver Sensitivity (1%PER)	-93dBm
Transmitting Power (EIRP)	CE Compliance: 25mW; FCC Compliance: 100mW
Working Current/Voltage	120mA@3.7V
Battery	2000mAh rechargeable LiPo battery
Range Extender	
Operating Frequency	2412MHz - 2462MHz
Communication Distance (open area)	500m - 700m
Transmitting Power	20dBm
Power Consumption	2W

Figure 2 – DJI PHANTOM Specifications

Figure 3 – DJI PHANTOM

The UAV/UAS/UA which DARTdrones LLC, Petitioner, will be operating is the DJI Phantom 2 and Phantom 2 Vision Plus, referred hereafter as Phantom. The inherent safety features, sophistication, programmability, GPS navigation, return home capability, airport vicinity no-fly feature and restricted altitude feature, as well as differentiating radio frequency (rf) for aircraft controller/receiver and for the camera make this a much safer UAV for the purposes of this petition. This is a hobby grade radio controlled UAV that has the capacity for software upgrades. It is light, less than 3 pounds including battery and camera. Incorporated into the programming of the Phantom is an automatic return home feature that automatically directs the craft back to point of take-off should communication with the transmitter be lost. The Phantom has a cruising speed of 15 knots, with a maximum speed of 29 knots. Maximum flight time is 25 minutes. Gross weight is 2.75 pounds.

The Phantom has an additional communication link between the camera and craft on a different rf for a smart phone connection. Allowing the operator or Pilot in Command (PIC) to monitor battery level, altitude (AGL), distance from PIC, camera imagery, and control camera angle. The software for the Phantom allows the operator or PIC to set maximum altitude AGL for each flight, allowing customization of flights to no higher than 100 feet, 150 feet, or 250 feet AGL as an examples. The 400 foot maximum AGL can be programmed into the UAV's software pre-flight to insure compliance with FAA standards. Adding to the safety capabilities of this UAV. This UAV is programmed to remain in position when controls are released. Maintaining altitude and GPS location.

The Phantom has an altitude and radar monitoring function that allows the operator more precise determination of height, direction of flight and distance from the operator PIC. The operator or PIC can monitor GPS lock status while UAV is in flight, with the ability to anticipate loss of GPS locking so the operator or PIC can land the UAV as a precaution.

The DJI Phantom 2 Vision Plus' 2.4 ghz transmitter/controller/receiver rf for managing flight with a 5.8 ghz rf transmitter/receiver for video/photography functions eliminates the rf conflict, and is should be considered adequate for public and NAS safety. Considering the programmability and safety features of this UAV (Phantom 2 Vision Plus), it serves as the best option to protect the Public and NAS for the purposes of this petition.

Similarities, Distinctions and Differences

Though the petition of Astraeus Aerial (FAA-2014-0352), referred hereafter as the Astraeus Petition and or Petitioner Astraeus, has numerous similarities to that of DARTdrones, LLC, there are some distinct and substantial differences. Like the Astraeus Petition, the DARTdrones is for UAV operation without pilot, passengers nor property on board. Considering that the Phantom UAV is a sophisticated hobby grade quad-copter with gross weight less than 3 pounds Petitioner DARTdrones requests waiver or exemption for a private pilot certificate. Aerial basic training operations for this petition provide service for those that are new to the remote control model aircraft genre.

DARTdrones is using a UAV that has the capability for taking off and landing at a single point, identical to a helicopter. There are no runways, aided take off apparatuses, nor routes that need to be flown to areas being aerial video recorded or photographed. Allowing a reduced and more confined area of flight.

The Astraeus Petition is for movie sets involving a significant number of people, non-aerial equipment, moving or action sequences, and a potentially broad geographical area where individuals and equipment may be in motion. Requiring extensive observation, awareness, coordination and safety precautions. The DARTdrones petition is for the basic training of new Phantom owners that are confined to a designated flight area and restricted to a defined training area and training altitude. The stationary setting of objects poses a significantly lower risks for safety, allowing the operator or Pilot in Command (PIC) to focus primarily on the student and the aircraft. With the movie action scenes, numerous takes may require repeated flights, whereas a stationary object would in most cases require a single flight.

DJI Innovations continues to improve its products to ensure safe flying near airports. See https://www.youtube.com/watch?v=vimM1nnzljo&feature=em-subs_digest.

Training sites will be clearly marked and identified (see Figure 4). Signs will be posted cautioning anyone within vicinity to remain back a minimum of 100 feet (see Figure 5). Observer(s) to assist and warn/advise the PIC will be utilized in situations where spectators may be within 100 feet of the flight area.

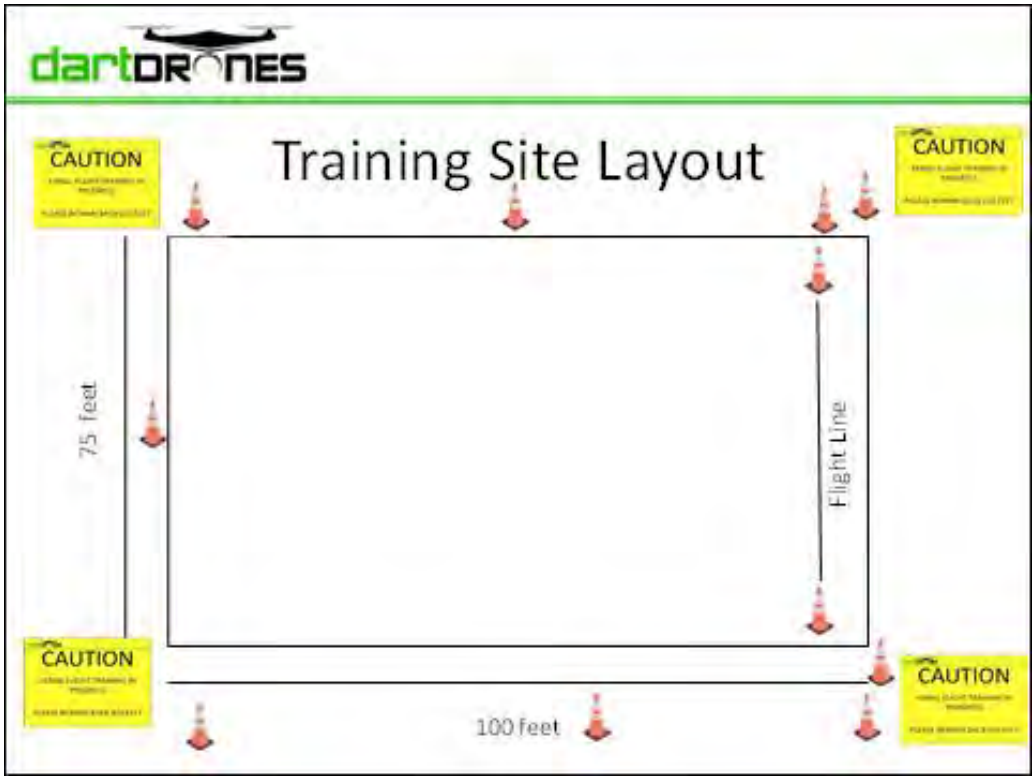


Figure 4 Training Site Layout

Figure 5 Caution Sign

The single UAV utilized in this petition is a hobby grade quad-copter that does not require an airman certificate for non-commercial flight involving less restrictive less regulated flight. Petitioner requests waiver or exemption from an airman certificate since this is a sophisticated hobby grade UAV weighing less than three pounds being flown in a defined and marked area. Additional waiver or exemption for formal health requirements placed on the Operator or PIC is requested as the PIC is a National Guard member that is medically qualified for overseas deployment in accordance with the U.S Army's requirements. Petitioner is an AMA member. UAV flight competency can be verified/obtained through AMA standards and procedures.

The motors, rotors, propellers, body/frame, landing pads, etc. for the UAV utilized in this petition are not complicated. Engineering and design allows layman maintenance. Recording part replacement for this UAV may prove redundant due to the simplicity of the craft. Therefore Petitioner requests waiver or exemption for maintenance records. However, pre-flight inspection for cracks, damage or other physical conditions that could hamper safe flight is a reasonable expectation. As well as post flight inspection that may aid in identifying flight conditions that may cause stress to propellers, landing gear, etc. Thorough inspection of UAV shall be conducted and flight response tested should a hard landing or crash occur insuring that the UAV can operate in a safe manner before conducting any further training.

Like the Astraeus Petition Petitioner DARTdrones requests waiver or exemption for markings due to the small size of the fuselage for the Phantom 2 Vision Plus.

Petitioner DARTdrones requests modification, waiver or exemption and clarification (within reason) concerning section 91.119 prohibition of flight in congested areas. Petitioner DARTdrones requests waiver for this condition to allow reasonable and responsible flight training in congested areas of subdivisions and neighborhoods.

In compliance with Section 90.151 (a) the Phantom is a battery operated UAV/UAS with battery level monitoring capability. Fully charged battery flight time is rated at 25 minutes, with videos/photos taking much less time to record. Operator or PIC is warned when battery level is low.

Petitioner DARTdrones requests waiver/exemption from Section 91.203 (a) since the Phantom is a hobby grade UAV/UAS that should not require an airworthiness certificate nor a registration certificate. Posting of special flight authorization would not be possible since the Phantom has no cabin and is not large enough to carry a certificate. However, a special flight authorization can be maintained by the operator to make available upon request.

C. DARTdrones, LLC Proposed Operations Demonstrate an Equivalent Level of Safety

1. General Description of Proposed Flight Operations

DARTdrones, LLC proposes to operate only on the listed Sites and within the limitations and performance specifications listed in the Manuals, which are summarized below. These limitations provide for at least an equivalent, or higher, level of safety for operations under the

current regulatory structure because the proposed operations represent a safety enhancement to the protocols.

The proposed operations do not create any hazard to users of the national airspace system or pose a threat to national security. The aircraft is a battery operated quadcopter with a maximum flight time of 25 minutes. The vehicle weighs approximately 2.75 pounds. It has vibration dampers and small frame air incline. The vehicle's ground speed has a maximum of 25 mph but it will be operated between 2 and 5 miles per hour, and it will operate at or below 200 feet AGL.

Manned aircraft are at risk of fuel spillage and fire in the event of an incident or accident. The PHANTOM carries no fuel, and therefore the risk of fire following an incident or accident due to fuel spillage is eliminated. Compared to manned aircraft, the unmanned aircraft being operated by the petitioner reduces the risk to participating persons in close proximity to the aircraft due to the limited size, weight, operating conditions, and design safety features of the PHANTOM.

DARTdrones, LLC operations will be in remote areas at least 5 miles from any airport and away from population centers, as demonstrated by Figure 1 (Training Sites). The PHANTOM will be operated only on the sites, which are listed.

The FAA has determined that the risk of not having an electronic means to monitor and communicate with other aircraft, such as transponders or sense and avoid technology, is mitigated by placing limits on altitude, requiring stand-off distance from clouds, permitting daytime operations only, and requiring that the aircraft be operated within visual line of sight and yield right of way to all other manned operations. Additionally, the operator will request a NOTAM prior to operations to alert other users of the NAS. See Exemption No. 11062, Docket No. FAA 2014-0352, at p. 13.

The petitioner's aircraft has the capability to operate safely after experiencing certain in- flight failures, as specified above in the description of the V2 Flight Control System. The aircraft is also able to respond to a lost-link event with a pre-coordinated, predictable, automated flight maneuver.

2. Specific Limitations on Proposed Flight Operations

Given the small size involved, the restricted environment within which they will operate, the procedures listed below, and pilot certification requirements, DARTdrones, LLC proposed operations using the PHANTOM would "not create a hazard to users of the national airspace system or the public or pose a threat to national security." Reform Act Section 333(b)(1).

1. The aircraft is approximately 2.75 pounds.
2. The aircraft will be identified by serial number, registered with the FAA, and have identification (N-Number) markings as large as practicable.
3. Flights will be operated within visual line of sight of the pilot in command (PIC).
4. Prior to each flight, a zero altitude initiation point will be established and confirmed for accuracy by PIC.
5. Maximum flight time for each operational flight will be 20 minutes.

6. The aircraft will be safely landed with no less than the greater of (a) 20% battery life remaining or (b) five minutes of flight time remaining.
7. The aircraft will be operated during daylight and in VFR conditions.
8. Flights will not exceed 200 feet AGL, so as to basic flight training.
9. Flights will be operated at a lateral distance of at least 50 feet from any persons or property not associated with the operation who have not given prior permission.
10. Flights will be limited to a groundspeed of 5 mph.
11. Minimum crew for each flight will consist of a PIC and an Observer.
12. The PIC will possess at least a private pilot certificate, a third class medical certificate, or have held a US Army Military Occupational Specialty (MOS) 15W Unmanned Aerial Vehicle Operator, USMC MOS 7314/7316 -- Unmanned Aerial Vehicle (UAV) Air Vehicle Operator, and/or 150U Tactical Unmanned Aerial Systems (TUAS) Operations Technician, Navy MOS NEC 8362, NEC 8363, NEC 8364, NEC 8366, NEC 8367, and NEC 8368. Pilots with this training are considered trained and currently fly throughout the United States for the United States military. Pilots with military training will be required to hold a security clearance. Having a government furnished security clearance ameliorates security concerns over civil UAS operations conducted in accordance with Section 333. Any designee from DARTdrones, LLC will have completed a Factory Certified Basic Operator Course for the PHANTOM.
13. Prior to the flight, a Mission Plan will be created setting forth the limitations for the flight as well as contact information for the PIC.
14. The flight operations will yield the right of way to other manned aircraft operations.
15. All persons who are not involved with training class will be required to stay 25 feet from the edge of the training perimeter.
16. The aircraft will only operate within the listed sites.
17. DARTdrones, LLC will provide NOTAM details to the FAA 24 hours prior to each flight.
18. All required permissions and permits will be obtained from territory, state, county or city jurisdictions prior to flight.
19. Prior to commencing operations, DARTdrones, LLC will obtain a Certificate of Waiver or Authorization (COA) from the FAA.
20. If the aircraft loses communications, it will have the capability to return to a pre-determined location within the operational area and land.
21. If the aircraft loses its GPS signal it will have the capability of being flown manually to a predetermined location within the operational area and land.
22. The flight will be aborted in case of unpredicted obstacles or emergencies.
23. Each flight will be recorded in an Operations Log Book.
24. Maintenance on the aircraft will be recorded in a Maintenance Log Book.

3. Flight Recovery, Lost Communications, and Lost GPS Procedures

The flight recovery, lost communications, and lost GPS procedures are documented above, and are more fully documented in the attached NAZA-M V2 Quick Start Guide (See Attachment 6).

4. Proposed Flight Areas

DARTdrones, LLC is requesting to operate in the various sites listed in their site chart.

V. SPECIFIC FAR EXEMPTIONS REQUESTED

DARTdrones, LLC seeks an exemption from several interrelated provisions of 14 C.F.R. Parts 21, 45, 61, and 91 for purposes of conducting the requested operations using the PHANTOM. Listed below are (1) the specific FAR sections for which exemption is sought, and (2) the operating procedures and safeguards that DARTdrones, LLC has established which will ensure a level of safety better than or equal to the rules from which exemption is sought. See 14 C.F.R. § 11.81 (e).

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

The FAA has stated that no exemption is needed from this section if a finding is made under the Reform Act that the UAS selected provides an equivalent level of safety when compared to aircraft normally used for the same application. These criteria are met, and therefore no exemption is needed. See Grant of Exemption to Astraeus Aerial, Docket No. FAA 2014-0352 at 13-14, 22. If, however, the FAA determines that there are some characteristics of the PHANTOM that fail to meet the requirements of the Reform Act, an exemption is requested.

Equivalent Level of Safety: The PHANTOM is safe when taking into account its size, weight, speed, and operational capability. The PHANTOM weighs approximately 2.75 pounds and will be flown at speeds less than 5 miles per hour, in visual line of sight of the operator, and in remote and unpopulated airspace, specifically, on the sites. The PHANTOM does not carry pilots, passengers, explosive materials, or flammable liquid fuels. The PHANTOM will be operated within the parameters of the Manuals.

DARTdrones, LLC will also provide the FAA with advance notice of all operations via NOTAM and coordination with the local FSDO. The proposed operations will be at least as safe as, or safer than, conventional rotorcraft operating with an airworthiness certificate without the restrictions and conditions proposed here. The proposed operations will also be as safe, or safer than, traditional power line monitoring and/or wind turbine inspection methods.

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

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

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

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

When marks include only the Roman capital letter "N" and the registration number is displayed on limited, restricted or light-sport category aircraft or experimental or provisionally certificated aircraft, the operator must also display on that aircraft near each entrance to the cabin, cockpit, or pilot station, in letters not less than 2 inches nor more than 6 inches high, the words "limited," "restricted," "light-sport, "experimental," or "provisional," as applicable.

14 C.F.R. § 45.27(a) states:

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

14 C.F.R. § 91.9(c) states:

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

In a previous Grant of Exemption, the FAA determined that exemption from these requirements was warranted provided that the aircraft "have identification (N-Number) markings in accordance with 14 CFR part 45, Subpart C if the markings are "as large as practicable." See Exemption No. 11062, Docket No. FAA 2014-0352, at p. 14.

Equivalent Level of Safety: DARTdrones, LLC will mark all PHANTOMs with their N-Number in a prominent spot on the fuselage with markings that are as large as practicable.

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

DARTdrones, LLC seeks exemption from 14 CFR § 61.113, which restricts private pilots from flying aircraft for compensation or hire and would also require a second class medical certificate. The purpose of Part 61 is to ensure that the skill and competency of any PIC matches the airspace in which the PIC will be operating, as well as requiring certifications if the pilot is carrying passengers or cargo for hire.

While the PHANTOM will be operated as part of a commercial operation, it carries neither passengers nor cargo. In the Grant of Exemption in FAA Docket No. FAA-2014-0352, the FAA determined that the unique characteristics of UAS operation outside of controlled airspace did not warrant the additional cost and restrictions attendant with requiring the PIC to have a commercial pilot certificate and a class II medical certificate. The FAA has also determined that the required knowledge for a commercial pilot covers the same fundamental principles as a private pilot.

The PIC will possess at least a private pilot certificate, a third class medical certificate, or have held a US Army Military Occupational Specialty (MOS) 15W Unmanned Aerial Vehicle Operator, USMC MOS 7314/7316 -- Unmanned Aerial Vehicle (UAV) Air Vehicle Operator, and/or 150U Tactical Unmanned Aerial Systems (TUAS) Operations Technician, Navy MOS

NEC 8362, NEC 8363, NEC 8364, NEC 8366, NEC 8367, and NEC 8368 and will have completed a DJI Factory-Certified Basic Operator Course for the PHANTOM. This is a 3-day program that includes ground school and flight training.

The FAA stated in its grant of an exception to Astraeus Aerial the "the FAA considers the overriding safety factor for the limited operations proposed by the petitioner to be the airmanship skills acquired through UAS-specific flight cycles, flight time, and specific make and model experience, culminating in verification through testing." See Exemption No. 11062, Docket No. FAA 2014-0352, at p. 18. The proposed operations can achieve an equivalent level of safety by requiring the knowledge and experience in PHANTOM operations described above.

Furthermore, the security screening conducted by the Transportation Security Administration of certificated airmen satisfies the statutory requirement of Section 333 for operations to not pose a threat to national security.

The restrictions DARTdrones, LLC has placed on its PHANTOM operations meet or exceed the restrictions similarly imposed on Astraeus Aerial in FAA Docket No. FAA-2014-0352. DARTdrones, LLC will operate in restricted areas (the sites) away from persons and property not involved in the operation. The aircraft will be flown based on VLOS at or below 400 feet AGL, so as to accommodate inspections of wind turbines on specified sites. A NOTAM will be issued at least 24 hours before the flight is to occur, and the flight will be coordinated with the applicable FSDO.

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

DARTdrones, LLC seeks an exemption from 14 C.F.R. § 91.7(a), which requires that a civil aircraft be in airworthy condition to be operated. The FAA has stated that no exemption is required to the extent that the requirements of Part 21 are waived or found inapplicable. Accordingly, DARTdrones, LLC requests that the requirements for Section 91.7 be treated in accordance with FAR Part 21 Subpart H. See Grant of Exemption No. 11062, p. 19.

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

Pursuant to 14 C.F.R. § 91.9(b)(2):

> (b)No person may operate a U.S.-registered civil aircraft -
> …
>
> (2)For which an Airplane or Rotorcraft Flight Manual is required by § 21.5 of this chapter, unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.

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

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

(1)An appropriate and current airworthiness certificate.

(b)No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under § 91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

DARTdrones, LLC does not request an exemption from this section but instead notifies the FAA that, in accordance with FAA Office of Chief Counsel's Opinion dated August 8, 2014, the UAS flight manual, registration certificate and other documentation will be kept at the control station with the PIC during flight. The Chief Counsel's Office has held that for all UAS operations, this alternate method constitutes full compliance with the regulations. See also Grant of Exemption No. 11062, pp. 19-20, and Grant of Exemption No. 8607.

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

DARTdrones, LLC seeks an exemption from 14 C.F.R. § 91.103, which requires a PIC to become familiar with specific information before each flight, including information contained in the FAA-approved Flight Manual on board the aircraft. The aircraft will not have a Flight Manual on board. The PIC will take all actions including reviewing weather, flight battery requirements, landing and takeoff distances and aircraft performance data before initiation of flight. Under these circumstances, the FAA has stated that no exemption is required. See Grant of Exemption No. 11062, p. 20. An exemption is requested to the extent that an FAA-approved Flight Manual is required.

Equivalent Level of Safety: An equivalent level of safety will be provided by following the Manuals. The PIC will take all required preflight actions - including performing all required checklists and reviewing weather, flight requirements, battery charge, landing and takeoff distance, aircraft performance data, and contingency landing areas - before initiation of flight. The Manuals will be kept at the ground station with the operator at all times.

H. 14 C.F.R. § 91.109(a): Flight Instruction

DARTdrones, LLC seeks an exemption from 14 C.F.R. § 91.109(a), which provides that "[n]o person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls." UASs and remotely piloted aircraft, by their design, do not have functional dual controls. Instead, flight control is accomplished through the use of the A2 Flight Control System/Ground Control Station (GCS) that communicates with the aircraft via radio communications.

Equivalent Level of Safety: When flight instruction is performed, no pilots will be on the aircraft and the GCS will be a safe distance from the aircraft and the public, causing no safety hazard. Given the size and speed of the PHANTOM, an equivalent level of safe training can still be

performed without dual controls because no pilot or passengers are aboard the aircraft, and all persons will be a safe distance away in the event that the aircraft experiences any difficulties during flight instruction. In addition, DARTdrones, LLC will conduct flight training at a remote facility away from population centers. These training flights will be conducted on the sites and will otherwise comply with the provisions in the Manuals. Accordingly, DARTdrones, LLC proposed method of operation provides superior levels of safety.

I. 14 C.F.R. § 91.119(c): Minimum Safe Altitudes in Uncongested Areas

DARTdrones, LLC requests an exemption from the minimum safe altitude requirements of 14 C.F.R. § 91.119(c). Section 91.119(c) prescribes that an aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure. The Manuals provide for operations away from congested populations areas on the sites. The FAA has already determined that relief from Section 91.119(c) is warranted for UAS operations in uncongested areas with similar flight restrictions as those imposed by DARTdrones, LLC. See Grant of Exemption No. 11062, p. 20-21.

Equivalent Level of Safety: Compared to flight operations with rotorcraft weighing far more than the maximum weights proposed herein, and given the lack of flammable fuel, any risk associated with these operations is far less than those that presently exist with conventional aircraft. An equivalent level of safety will be achieved given the size, weight, and speed of the PHANTOM, as well as the locations where it is operated – the sites. In order to avoid any risk to aircraft, flight operations will be restricted to 200 feet AGL or below. As set forth in the Manuals and herein, the PHANTOM will be operated in the remote sites, away from persons or structures not involved in the operation. All persons who are not involved with DARTdrones, LLC operations will be required to be at least 25 feet from the training perimeter.

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

This petition seeks an exemption from 14 C.F.R. § 91.121, which requires a person operating an aircraft to maintain cruising altitude or flight level by reference to an altimeter that is set to the elevation of the departure airport. The PHANTOM uses both barometric pressure sensors and GPS to determine altitude but does not have the ability to set in a current altimeter setting. An exemption is required to the extent that the PHANTOM does not have a barometric altimeter setting. The altitude of the aircraft is monitored by the PIC on the ground control station and by the visual observer.

Equivalent Level of Safety: The FAA has stated that an equivalent level of safety can be achieved if the aircraft will be operated at or below 400 feet AGL and within visual line-of-sight in addition to GPS based altitude information relayed in real time to the operator. See Grant of Exemption No. 11062, p. 20-21. As the attached Manuals indicate, the PHANTOM will be operated at or below 400 feet AGL and complies with the limitations in the Grant of Exemption No. 11062.

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

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

> (a) No person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed –
>
> (1) During the day, to fly after that for at least 30 minutes; or
>
> (2) At night, to fly after that for at least 45 minutes.

Here, the technological limitations on PHANTOM battery power means that no meaningful flight operations can be conducted while still maintaining a 30 minute reserve. The aircraft is battery powered with a maximum flight time of 25 minutes. DARTdrones, LLC proposes that the maximum flight time for each operational flight will be 20 minutes. The aircraft will be safely landed with no less than the greater of (a) 20% battery life remaining or (b) five minutes of flight time remaining.

Equivalent Level of Safety: The FAA has stated that an equivalent level of safety is provided if the UAS flight is conducted under daytime VFR flight conditions using VLOS, and terminated with at least 25% reserve battery power still available. See Grant of Exemption No. 11062, p. 21-22. The Manuals providing an equivalent level of safety by safely landing with no less than the greater of (a) 20% battery life remaining or (b) five minutes of flight time remaining and otherwise complying with the flight restrictions above.

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

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

Equivalent Level of Safety: An equivalent level of safety will be achieved because maintenance and inspections will be performed in accordance with the Manuals. This includes maintenance, overhaul, replacement, and inspection requirements for the aircraft and procedures to document and maintain maintenance records for the aircraft. This also includes preflight inspection procedures. See Exemption No. 11062, Docket No. FAA 2014- 0352, at p. 14-15.

As provided in the Manuals, flights will not be conducted unless a flight operations checklist is performed that includes all of the aircraft's components. The Manuals also set requirements for

maintenance log books and record keeping as well as routine and post-flight maintenance. The Manuals set requirements for both annual maintenance and preventative maintenance.

VI. PUBLIC INTEREST

Granting DARTdrones, LLC petition for exemption furthers the public interest. National policy set by Congress favors early integration of UAS into the NAS in controlled, safe working environments such as the sites proposed in this petition. By granting this petition, the FAA will fulfill Congress's intent of allowing UAS to operate safely in the NAS before completion of the rulemaking required under Section 332 of the Reform Act.

Moreover, use of unmanned aircraft operations will improve awareness of FAA regulations and provide a standard level of training for all PHANTOM pilots. The use of the PHANTOM will also decrease safety-related incidents involving new users of quadcopters.

PHANTOM flight training will increase the effectiveness of new users, decrease their safety risks, and reduce the number of incidents between unmanned and manned aircraft.

Thus, the use proposed here will allow DARTdrones, LLC to determine the efficacy of the PHANTOM for increasing public safety. The PHANTOM is approximately 2.75 pounds, carries no passengers or crew, and has no flammable fuel, as opposed to larger and more powerful helicopters and small airplanes. This program may prevent accidents and injuries, and there is a strong public interest in making these operations more safe and effective through the use of UASs.

VII. PRIVACY

All flights will occur over the identified sites. All flights will be conducted in accordance with any federal, state or local laws regarding privacy.

VIII. SUMMARY FOR FEDERAL REGISTER

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

DARTdrones, LLC seeks an exemption from the following rules for the commercial operation of a small unmanned aerial system to inspect wind turbine blades and towers for the renewable energy industry: 14 C.F.R Part 21, Subpart H; 14 C.F.R Part 27; 14 C.F.R § 45.23(b); 14 C.F.R. § 45.27(a); 14 C.F.R § 61.113; 14 C.F.R § 91.7(a); 14 C.F.R § 91.9(b)(2); 14 C.F.R § 91.9(c); 14 C.F.R § 91.103; 14 C.F.R § 91.109(a); 14 C.F.R § 91.119; 14 C.F.R § 91.121; 14 C.F.R § 91.151(a) & (b) 14 C.F.R § 91.203 (a) & (b); 14 C.F.R § 91.405(a); 14 C.F.R § 91.407(a)(l); 14 C.F.R § 91.409(a)(2); 14 C.F.R § 91.417 (a) & (b).

The exemption will enhance safety by reducing risk to the operator, the general public and property owners from the hazards associated with new Phantom pilots.

IX. ATTACHMENTS

Attachment 1: DJI PHANTOM 2 Vision Plus User Manual v1.8
Attachment 2: DJI Phantom 2 Vision Plus Quick Start Guide
Attachment 3: DJI Phantom Pilot Training Guide v1.1
Attachment 4: DJI Phantom 2 User Manual v1.4
Attachment 5: DJI Phantom 2 Quick Start Guide
Attachment 6: DJI NAZA-M V2 Quick Start Guide v1.26

X. CONCLUSION

Satisfaction of the criteria provided in Section 333 of the Reform Act - size, weight, speed, operating capabilities, proximity to airports and populated areas, operation within visual line of sight, and national security considerations - provides more than adequate justification for the grant of the requested exemptions to permit DARTdrones, LLC to operate the PHANTOM on the sites.

Granting the requested exemption will benefit the public interest as a whole in many ways, including (1) significantly improving safety and reducing risk by alleviating human exposure to danger; (2) improving the quality of services DARTdrones, LLC can provide to its customers; and (3) decreasing the risks of unmanned aircraft interfering with manned aircraft

Respectfully submitted,

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