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

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

May 11, 2015

Exemption No. 11515
Regulatory Docket No. FAA–2015–0438

Mr. Neil C. Johnston
Ms. Carolyne B. Jones
Counsel for Atlantic Coast Conservancy, Inc.
Hand Arendall LLC
RSA Tower
11 North Water Street, Suite 30200
Mobile, AL 36602

Dear Mr. Johnston and Ms. Jones:

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 19, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Atlantic Coast Conservancy, Inc. (hereinafter petitioner or operator) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct aerial photography, mapping, surveying, and inspection.

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

Conditions and Limitations

In this grant of exemption, Atlantic Coast Conservancy, Inc. is hereafter referred to as the operator.

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

1. Operations authorized by this grant of exemption are limited to the DJI 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 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 May 31, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/

John S. Duncan
Director, Flight Standards Service

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February 19, 2015

1) VIA UPS OVERNIGHT
2) VIA ELECTRONIC SUBMISSION - REGULATIONS.GOV
U.S. Department of Transportation, Docket Operations
Attn: Mr. Anthony Foxx
Secretary of Transportation
West Building Ground Floor, Room w12-140
1200 New Jersey Avenue, SE.
Washington, DC 20590-001

Re: **[Small Unmanned Aircraft System – Use of Quadcopters]**

Request and Application for Exemptions by Atlantic Coast Conservancy, Inc. under Section 333 – FAA Reform and Modernization Act of 2012 and Part 11-Federal Aviation Regulations from 14 C.F.R. § 21, Subpart H; 14 C.F.R. § 43.7; 14 C.F.R. § 43.11; 14 C.F.R. § 45.21; 14 C.F.R. § 45.23(b); 14 C.F.R. § 45.25; 14 C.F.R. § 45.27; 14 C.F.R. § 45.29; 14 C.F.R. § 47.3(b)(2); 14 C.F.R. § 61, Subpart E; 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. § 91.105; 14 C.F.R. § 91.109; 14 C.F.R. § 91.113(b); 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; 14 C.F.R. § 91.215; 14 C.F.R. § 91.405(a) and (d); 14 C.F.R. § 91.407(a)(1); 14 C.F.R. § 91.409(a)(2); 14 C.F.R. § 417(a) and (b).

Dear Mr. Foxx:

On behalf of the Atlantic Coast Conservancy, Inc. **("Atlantic Coast")**, we submit to you this Request and Application for Exemptions from certain requirements of the FAA Reform and Modernization Act of 2012 and Regulations described above and in our Paragraph 5 herein. In support of our Request and Application, we will describe the operations and equipment to be used by Atlantic Coast, the necessity and reasons for exemptions, and the precautions that Atlantic Coast will implement and commit to follow.

1) <u>The Applicant - Atlantic Coast Conservancy, Inc.</u>

Atlantic Coast is a conservation land trust organized as a not-for-profit corporation and an Internal Revenue Code Section 501(c)(3) charitable organization.[1] As a nonprofit conservation land trust, Atlantic Coast acquires and holds title to conservation easements on many parcels of environmentally sensitive forestland, open space, grasslands, wetlands, and aquatic habitats, wildlife and endangered species' habitats, and biologically diverse lands in several states. Each land holding requires active management,

[1] See Atlantic Coast IRC Section 501(c)(3) designation letter from the Internal Revenue Service, "Exhibit A" attached hereto.

inspections, monitoring, and documenting conditions of habitat, wildlife, restricted activities, and changes due to active management, natural events, climatic events, and extraordinary events. Atlantic Coast is required by law through 25 U.S.C. § 170(h) and 26 C.F.R. § 170A-14 to create an initial baseline report documenting the environmental conditions identifying the sensitive ecological resources and sites, identifying the conservation and archeological sites, and documenting changes to timberlands, open space, wetlands, and endangered species habitats. Atlantic Coast actively manages their conservation lands utilizing aerial and ground photography, mapping and surveys to monitor wildlife and boundaries; to enforce compliance by landowners; to inspect surface activities; and to identify, record, and remove exotic and invasive plants (such as Chinese tallow or "popcorn trees", privet, Japanese climbing ferns, cogon grass, kudzu and many others).

The name and address of the applicant is:

Atlantic Coast Conservancy, Inc.
Attn: Robert D. Keller, Ph. D.
Chief Executive Officer
72 South Main Street
Jasper, Georgia 30143
706-273-9173
rkeller@atlanticcoastconservancy.org.
http://www.atlanticcoastconservancy.org/

The CV of Robert D. Keller, Ph. D. is also provided in an attachment.[2]

2) Description of Operations

Atlantic Coast requests permission to operate a small, unmanned, lightweight and relatively inexpensive aircraft system, the DJI Phantom 2 Vision+ Quadcopter ("**Phantom**"),[3] under controlled conditions in airspace that is limited and predetermined. This will enable Atlantic Coast to safely and efficiently monitor surface conditions and various ecological occurrences on conservation lands managed by Atlantic Coast. Atlantic Coast acquires then monitors conservation easements in compliance with the *Land Trust Alliance Standards and Practices*, and in compliance with the U.S. Treasury Department, Internal Revenue Service, federal laws and regulations, 26 U.S.C. 170(h) and 26 C.F.R. § 170A-14. A conservation easement is a legal encumbrance, which creates an enforceable land preservation agreement between a landowner and a qualified land protection organization or government agency for the purpose of conservation. By using a conservation easement, the landowner conveys to Atlantic Coast an interest, a conservation interest, in the landowner's property to restrict real estate development, restrict commercial and industrial use, and to restrict certain other activities to a mutually agreed upon level. The property remains the private property of the landowner subject to and encumbered by the conservation easement held by Atlantic Coast. The landowner is entitled to charitable deductions for the amount of the appraised value of the property rights restricted, conveyed, or gifted to Atlantic Coast by the conservation

[2] See CV of Robert D. Keller, Ph. D., "Exhibit B" attached hereto.
[3] See DJI – Phantom 2 Vision + User Manual, "Exhibit C" attached hereto.

easement.[4] Atlantic Coast's prior relationships with private landowners of all land where the **Phantom** will be used facilitate Atlantic Coast's ability to obtain consent from all landowners and any person who could potentially come within 500 feet of the **Phantom's** operation.

Conservation easement management and monitoring are ongoing processes conducted by Atlantic Coast. As stated in Standard 11 of the *Land Trust Alliance Standards and Practices*, "the land trust [Atlantic Coast] monitors its easement properties regularly, at least annually, in a manner appropriate to the size and restrictions of the property, and keeps documentation (such as reports, updated photographs and maps) of each monitoring activity."[5]

Atlantic Coast is dedicated to providing 21st Century solutions and sound scientific applications for the conservation of critical natural resources and vulnerable habitats throughout the Southeast focusing on geographic information system ("**GIS**") applications in land conservation, environmental resource protection, and biological diversity.

Your approval of Atlantic Coast's request of the Exemptions stated herein will benefit the public, the environment, and the natural resources by improving the monitoring and documentation used by Atlantic Coast for land preservation efforts by adding much needed aerial reconnaissance and photography in real time at reduced risk and reduced costs. Because conservation easements are legally required to be formed for the purpose of preserving open space where such preservation is pursuant to a clearly delineated Federal, State, or local governmental conservation policies and will yield a significant public benefit,[6] allowing Atlantic Coast to improve its ability to safely and efficiently monitor conservation easements, by definition, must benefit the public. The Exemptions will also reduce direct and indirect environmental impacts on each of the properties from "on the ground" vehicular intrusion and noise, and reduce or eliminate expensive surveying and aerial photography by conventional manned aircraft with the associated and disruptive noise and fuel exhaust air contaminants. The Exemptions will enable Atlantic Coast to perform and provide research and educational data and opportunities, and to better monitor climate change and influence, and to research the effects of the 2010 Deepwater Horizon oil spill in the Gulf of Mexico on certain properties without emitting any carbon footprint.

The Exemptions will provide Atlantic Coast an additional and safer method of performing mandatory land management, inspections, and monitoring of environmentally critical forestlands, wetlands, watersheds, water resources, coastal resources and other ecologically sensitive lands, wildlife and natural resources fulfilling the Secretary of Transportation's responsibility to ". . . establish requirements for the safe operation of such aircraft systems in the national airspace system."[7]

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[4] See Deed of Conservation Easement, "Exhibit D" attached hereto to illustrate the terms, conditions, restrictions on monitoring requirements.
[5] "Land Trust Standards and Practices" Land Trust Alliance, 13 (Revised 2004), available at https://www.landtrustalliance.org/training/sp/lt-standards-practices07.pdf.
[6] 26 U.S.C. § 170(h)(4)(A)(iii)(II).
[7] Reform Act Section 333 (c).

3) The UAS

a. Description of UAS

Atlantic Coast requests the Exemptions for use of the **Phantom**, a small unmanned aircraft system ("**UAS**"), for nonprofit land and conservation easement management, site inspections, monitoring, conducting necessary aerial surveying, mapping, and aerial photography.

i. Flight Time and Weight

The **Phantom**'s maximum flight time is 25 minutes. The **Phantom** weighs less than three pounds.

ii. Flight Radar

The **Phantom** is equipped with flight radar that displays the current position of the **Phantom** in relation to the operator. Exceeding the control range of the remote control triggers the **Phantom** to automatically fly back to the original takeoff point and land safely.

iii. Mobile Vision

The operator may track the current flight and see what the **Phantom** sees through a mobile device.

iv. No Fly Zone

The **Phantom** includes No Fly Zone software to increase flight safety and prevent accidental flights into restricted areas.

v. Manufacturer Updates

The **Phantom** can connect to computers to receive manufacturer (DJI) firmware and applications, updates, news, alerts, and support.

vi. Remote Control

The remote control contains a gimbal control dial, a trainer port, a built-in rechargeable LiPo battery with a capacity of 2000mAh, battery level LED indicators, and a throttle locking feature.

vii. Antistatic Compass

The **Phantom** has an anti-static compass with a protective shell. Together, these equipment features ensure Atlantic Coast and the UAS will "not create a hazard to users of the national airspace system or the public."[8]

viii. Flight Limitation Application

[8] Reform Act Section 333 (b).

The **Phantom** has software to prevent the UAS from flying into restricted areas, such as airports. The software creates a five mile safety zone around the restricted area. The operator is notified when the **Phantom** is 330 feet away from a safety zone. If the **Phantom** is five miles from an airport, the UAS cannot fly higher than 400 feet. This height limit decreases as the UAS moves closer to the airport so that when the UAS is 1.5 miles away, the **Phantom** may not fly higher than 35 feet. If this occurs, the operator has full control of the **Phantom**'s movement, except that the **Phantom** will automatically descend to the restricted height. The operator is prevented from initiating flight if the **Phantom** is within 1.5 miles from a restricted area. If the operator accidentally flies into a safety zone due to a loss of GPS signal, the **Phantom** will land immediately once the signal returns. If this occurs, the operator may control the **Phantom**, with the exception that the operator cannot make the UAS ascend in altitude. In addition, the **Phantom** has features that allow the operator to manually set height limitations and limit how close a **Phantom** may fly to a safety zone.

b. Phantom Equipment Factory Specifications[9]

Key Features	
Stabilization Gimbal	3- axis Camera Stabilization Gimbal
Video Downlink	Max 700m Wi-Fi Connection
Camera	14 Megapixels/1080p
Controllable Range	-90° – 0° (Vertical)
Ground Station	Built into the DJI Vision App
Remote Control	New version (left dial, built-in LiPo battery) 800m (FCC), 5,8 Ghz preinstalled smartphone holder
Max Flight Time	25 minutes
Aircraft	
Weight (Battery & Propellers included)	1284g (approximately 2.8 lbs)
Battery	5200mAh LiPo Battery
Max Ascent/Descent Speed	Ascent: 6 m/s Descent: 2m/s
Max Flight Speed	15 m/s
Max Yaw Angular Velocity	200°/s
Max Tilt Angle	35°
Diagonal Length	350mm
Camera	
Gimbal Pitch Control Range	0°-90°
Operating Environment Temperatures	0°C-40°C
Sensor Size	1/2.3"
Effective Pixels	14 Megapixels
FOV	110°/85°

[9] Information from www.dji.com/products/compare-phantom. See also DJI – Phantom 2 Vision+ Specifications "Exhibit E" attached hereto.

Remote Control	
Operating Frequency	5.728 GHz-5.85 GHz
Communication Distance (Open Area)	CE: 400m FCC: 800m
Receiver Sensitivity (1% PER)	-93dBm
Transmitter Power (EIRP)	CE: 25mw FCC: 100mw
Working Voltage	120 mA@V
Battery	LiPo Battery 3.7V 2000mAH
Left Dial	Available
Throttle Lock	Available
Trainer Port	Available
Range Extender	
Operating Frequency	2412-2462 MHz
Communication Distance (Open Area)	500-700m
Transmitter Power	20dBm
Power Consumption	2W

4) Limited and Predetermined Use

Atlantic Coast agrees to be bound by the following limitations and conditions when conducting management, inspection, mapping, surveying, and monitoring operations under an FAA issued exemption:

1. **Phantom Weight:** The UAS will weigh less than three pounds including energy source(s) and equipment. Operations authorized by this grant of exemption are limited to the following aircraft: DJI **Phantom** 2 Vision+. [See "Exhibit C" attached hereto.]
2. **Limited Flight Speed:** The UAS will not be flown at a speed exceeding a ground speed of 30 knots.
3. **Flight Altitude Limit:** Flights will be operated at an altitude of no more than 400 feet above ground level.
4. **VLOS:** The UAS will be operated within the visual line of sight ("**VLOS**") of the pilot in command at all times. This requires the pilot in command ("**PIC**") to be able to use human vision unaided by any device other than corrective lenses.
5. **VO:** All operations will use a visual observer ("**VO**"). The VO may be used to satisfy the visual line of sight requirement, as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times.
6. **Preflight Inspection:** Prior to each flight, the PIC will inspect the UAS to ensure it is in a condition for safe flight. 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 re-inspected and found to be in a condition for safe flight. If there is a ground control station, it must be included in the preflight inspection. All maintenance and alterations will be properly documented in the UAS records.
7. **Flight Functional Test:** Any UAS that has undergone maintenance or alterations that affect UAS operations or flight characteristics such as the replacement of a flight critical

component will undergo a flight functional test. The PIC who conducts the flight functional test will make an entry in the UAS aircraft records of the flight.

8. **Manufacturing Requirements:** Atlantic Coast will follow the manufacturer's aircraft/component, maintenance, overhaul, replacement, inspection, and life limit requirements. At a minimum, this will include requirements for the following: actuators, transmission (single rotor), powerplant (motors), propellers, electronic speed controller, batteries, mechanical dynamic components (single rotor), remote command and control, and ground control station (if used).
9. **Operating and Flight Precautions:**
   (a) The UAS will not be operated directly over any person, except authorized and consenting personnel, or below an altitude that is hazardous to persons or property on the surface in the event of a UAS failure or emergency.
   (b) Regarding the distance from participating persons, those persons must be essential to the mandatory conservation and environmental monitoring operations and any surveying operations. Because these procedures are specific to participating persons, no further Flight Standards District Office ("**FSDO**") or Aviation Safety Inspector approval is necessary for reductions to the distances specified.
   (c) Regarding the distance from non-participating persons, Atlantic Coast will ensure that no persons are allowed within 500 feet of the area except those consenting to be involved and necessary for the mandatory conservation and environmental monitoring operations and any surveying operations. This provision may be reduced to no less than 200 feet if it would not adversely affect safety and the Administrator has approved the reduction.
   (d) If the UAS loses communications or loses the GPS signal, the UAS will return to the original takeoff point.
   (e) The UAS will abort the flight in the event of unpredicted obstacles or emergencies.
   (f) Each UAS operation must be completed within 25 minutes flight time or with 25% battery power remaining, whichever occurs first.
10. **COA:** Atlantic Coast will obtain an Air Traffic Organization ("**ATO**") issued Certificate of Waiver or Authorization ("**COA**") prior to conducting any operations. This COA will require Atlantic Coast to request a Notice to Airmen ("**NOTAM**") not more than 72 hours in advance, but not less than 48 hours prior to operations.
11. **Maintenance:** Atlantic Coast will develop procedures to document and maintain a record of the UAS maintenance, preventative maintenance, alterations, status of replacement/overhaul component parts, and the total time in service of the UAS.
12. **Safety Bulletins:** The UAS will be operated by Atlantic Coast in compliance with all manufacturer Safety Bulletins.
13. **Radio Frequency:** Before conducting operations, the radio frequency spectrum used for operation and control of the UAS will comply with the Federal Communications Commission ("**FCC**") or other appropriate government oversight agency requirements.
14. **Plan of Activities:** At least three days before scheduled use, Atlantic Coast will submit a written Plan of Activities to the local FSDO with jurisdiction over the area of proposed UAS use. The three-day notification may be waived with the concurrence of the FSDO. The Plan of Activities will include at least the following:
   (a) Date and times for all flights.

(b) Name and phone number of the operator of the UAS under this grant.
(c) Make, model, and serial or FAA issued N-number or registered number of UAS to be used.
(d) Name and age of the UAS's PIC involved.
(e) Statement that the operator has obtained permission from property owners and/or local officials.
(f) The signature of exemption-holder or representative.
(g) Description of the flight activity, including maps and diagrams of any area, city, town, county and/or state over which UAS use will be conducted and the altitudes essential to accomplish the operation. UAS operations will not be conducted during night, as defined in 14 C.F.R. § 1.1.
(h) All operations will be conducted under visual meteorological conditions ("**VMC**").

15. **Documents:** The manufacturer's Flight User Manual will be available to the PIC at the ground control station or ground control point of the UAS any time the aircraft is operating.
16. **Right of Way:** The UAS will remain clear of and yield the right of way to all manned aircraft operations and activities at all times.
17. **Operations:**
    (a) The UAS operations will not be conducted at night, as defined in 14 C.F.R. § 1.1. All operations will be conducted under VMC.
    (b) The UAS will not be operated by the PIC from any moving device or vehicle.
    (c) The UAS will not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than three statute miles from the PIC.
    (d) The UAS will not be operated in Class B, C, or D airspace. The UAS will not be operated within five nautical miles of the geographic center of a non-towered airport as denoted on current FAA-published aeronautical chart unless a letter of agreement with that airport's management is obtained, and the operation is conducted in accordance with Notice to Airmen as required by the Applicant's COA. The letter of agreement with the airport management will be made available to the Administrator upon request.
18. **Accident Reports:** Any incident, action, 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 Integration Office (AFS-80) within 24 hours. Accidents will be reported to the National Transportation Safety Board ("**NTSB**"). Further flight operations will not be conducted until the incident, accident, or transgression is reviewed by the AFS-80 and authorization to resume is provided.

5) Atlantic Coast's Request for Exemptions

Congress intended the FAA to allow certain operations of small UAS by nonprofits for conservation, forestry, and agricultural purposes, and certain commercial activities through the exemption process, even during the period before the FAA releases new rules applicable to commercial UAS. Due to the **Phantom**'s small size, light weight (less than three pounds), built-in safety features, and the remote,

rural, and restricted locations where the **Phantom** will be operated, Atlantic Coast (a nonprofit land trust) meets all requirements of safe, forest and wildlife conservation UAS operations envisioned by Congress.

The UAS's size, weight, limited range and flight capacity, and restricted use on conservation lands managed, inspected, and monitored by Atlantic Coast in no way presents a national security issue. The Exemptions requested by Atlantic Coast provide for the equivalent, if not a higher, level of safety than the current regulatory scheme provides due to the dangers associated with much larger, heavier, and faster conventional manned aircraft.

In the alternative, Atlantic Coast's operations meet the "special purpose operations" descriptions of 14 C.F.R. § 21.25(b)(1) Agriculture; (b)(2) Forest and Wildlife Conservation; (b)(3) Aerial Surveys, Photography, and Mapping; and (b)(4) Conservation Lands.

Based on the facts and descriptions we have provided for you on behalf of Atlantic Coast, we respectfully request that the FAA grant the following requested exemptions:

14 C.F.R. § 21, Subpart H; 14 C.F.R. § 43.7; 14 C.F.R. § 43.11; 14 C.F.R. § 45.21; 14 C.F.R. § 45.23(b); 14 C.F.R. § 45.25; 14 C.F.R. § 45.27; 14 C.F.R. § 45.29; 14 C.F.R. § 47.3(b)(2); 14 C.F.R. § 61, Subpart E; 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. § 91.105; 14 C.F.R. § 91.109; 14 C.F.R. § 91.113(b); 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; 14 C.F.R. § 91.215; 14 C.F.R. § 91.405(a) and (d); 14 C.F.R. § 91.407(a)(1); 14 C.F.R. § 91.409(a)(2); 14 C.F.R. § 417(a) and (b).

a. 14 C.F.R. 21, Subpart H: Airworthiness Certificate

Atlantic Coast requests an exemption from 14 C.F.R. 21, Subpart H. This Subpart establishes the procedures for the issuance of an airworthiness certificate. Atlantic Coast requests an exemption from Part 21, Subpart H because the **Phantom** meets an equivalent level of safety pursuant to Section 333 of the Reform Act due to its small size, light weight, and remote rural operating environment.

b. 14 C.F.R. 43

i. 43.7: Persons Authorized to Approve Maintenance, Rebuilding, and Operation

Atlantic Coast requests an exemption from 14 C.F.R. 43.7. This part provides that the holder of a mechanic certificate or a repair station certificate may approve an aircraft, airframe, aircraft engine, propeller, appliance, or component part for return to service. Atlantic Coast operators will conduct inspections and maintenance based on maintenance guidelines provided by DJI, the manufacturer of the **Phantom**. The capabilities of Atlantic Coast operators to maintain and repair the UAS will meet the requirements for an equivalent level of safety pursuant to Section 333 for this type of UAS, its intended use, and the remote rural operating environment.

ii. 43.11: Records for Inspections

Atlantic Coast requests an exemption from 14 C.F.R. 43.11. This part provides that maintenance record entries be maintained, that the inspector list discrepancies, and to affix placards to the aircraft. This UAS, due to its small size, does not have room for placards to be placed in or on it and no inspections for UAS have been certified by FAA at the present time. However, as a condition to the grant of the exemption, Atlantic Coast is willing to keep records and log books of all maintenance and repairs.

c. 14 C.F.R. 45

i. 45.21: General

Atlantic Coast requests an exemption from 14 C.F.R. 45.21. This part provides that except as provided in § 45.22, no person may operate a U.S.-registered aircraft unless that aircraft displays nationality and registration marks in accordance with the requirements of this section and §§ 45.23 through 45.33. There are no current procedures for obtaining a registration mark for UAS by the FAA.

However, as a condition to the grant of the exemption, Atlantic Coast is willing to be assigned a registration number and to display it where practicable as addressed in this Request and Application for Exemptions relative to Parts 45.23, 45.27, and 45.29, below.

ii. 45.23 (b): Marking of the Aircraft

Atlantic Coast requests an exemption from 14 C.F.R. 45.23(b). This regulation requires:

> 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.

Even though the UAS will have no airworthiness certificate, Atlantic Coast requests an exemption from this requirement since the **Phantom** will have no entrance to the cabin (no cabin), cockpit (no cockpit), or pilot station on which the word "Experimental" or such other required description can be placed. Given the size of the UAS, two-inch lettering will be impossible, Atlantic Coast is willing to place the word "Experimental" on the UAS in compliance with § 45.29(f). The equivalent level of safety will be provided by having the UAS marked as required by § 45.29(f) where the pilot, observer and others working with the UAS will see the identification of the UAS as "Experimental" or such other required lettering.

iii. 45.25: Location of Marks on Fixed-Wing Aircraft

Atlantic Coast requests an exemption from 14 C.F.R. 45.25. The UAS is a multirotor, quadcopter, model-sized aircraft and is not a fixed-wing aircraft. Therefore, 14 C.F.R. 45.25 by its terms does not apply.

iv. 45.27: Location of Marks: Nonfixed-Wing Aircraft

Atlantic Coast requests an exemption from 14 C.F.R. 45.27. This part provides that 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. The UAS, due to its small size, does not have a cabin, fuselage, boom or tail to display the marks required by § 45.23.

v. 45.29: Size of Marks

Atlantic Coast requests an exemption from 14 C.F.R. 45.29. This part provides at subpart (3) that the registration marks for rotorcraft must be at least 12 inches high. The UAS, due to its small size, does not have any surface area large enough to display marks anywhere near 12 inches high. However, as a condition to the grant of the exemption, Atlantic Coast is willing to place an aircraft mark on one or

more of the "arms" of the UAS. The size of the marking will be determined by the size of the "arm" being used and may be less than one inch in size.

d. 14 C.F.R. 47.3(b)(2): Registration Required

Atlantic Coast requests an exemption from 14 C.F.R. 47.3(b)(2). This part provides:

> (b) No person may operate an aircraft that is eligible for registration under 49 U.S.C. 44101-44104, unless the aircraft –
> (1) Has been registered by its owner; [or]
> (2) Is carrying aboard the temporary authorization required by § 47.31(c).

There are no current procedures for obtaining a registration mark for UAS by the FAA. However, as a condition to the grant exemption, Atlantic Coast is willing to be assigned a registration number provided by FAA and to display it where practicable as addressed in this Request and Application for Exemptions relative to Parts 45.23, 45.27, and 45.29, above.

e. 14 C.F.R. 61, Subpart E – Certification: Private Pilots

Atlantic Coast requests an exemption from 14 C.F.R. 61, Subpart E. Section 61, Subpart E describes the requirements for issuance of private pilot certificates and the general operating rules for persons who hold those certificates and ratings. Because the UAS will not carry a pilot or passengers, the proposed operations can achieve the equivalent level of safety of current operations by requiring the PIC operating the UAS to have completed a UAS flight training course before flying the UAS (See DJI – Phantom Pilot Training Guide, Phantom 2 Vision+ User Manual, and Certificates of Training).

Unlike a conventional manned aircraft that carries the pilot and passengers, the UAS is small in size, weighs three pounds or less, is remotely controlled, and has no humans on board. The area of operation is controlled and restricted, and all flights are planned and coordinated in advance. The level of safety exceeds that provided by a single individual holding a commercial pilot's certificate operating a conventional manned aircraft. The risks associated with the operation of the UAS are much reduced from the level of risk associated with conventional manned aircraft operations contemplated by Part 61. Allowing the Exemptions and special purpose operations of the UAS as requested by Atlantic Coast with an operator who has met the requirements of safety and training as stated in the DJI – Phantom Training Guide[10] and User Manual,[11] and has completed the Scheduled DJI Phantom Training Course, and obtained a Pilot Training Program Certificate from The Chattahoochee Technical College[12] exceeds the present level of safety prescribed by 14 C.F.R. § 61.113 (a) and (b).

f. 14 C.F.R. 91

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[10] See DJI – Phantom 2 Vision+ Training Guide, "Exhibit G" attached hereto.
[11] See DJI – Phantom 2 Vision+ User Manual, "Exhibit C" attached hereto.
[12] See Certificates of Training, "Exhibit F" attached hereto; see also http://www.chattahoocheetech.edu/2014/08/uav-course-at-chattahoochee-tech-to-take-flight-in-fall/.

i. 91.7(a): Civil Aircraft Airworthiness

Atlantic Coast requests an exemption from 14 C.F.R. 91.7(a). The regulation requires that no person may operate a civil aircraft unless it is in airworthy condition. Given the small size, light weight, and low noise level output of the UAS, the requirements for maintenance, and the use of safety checklists prior to each flight, an equivalent level of safety will be provided.

ii. 91.9(b)(2): Civil Aircraft Flight Manual [in the Aircraft], Marking, and Placard Requirements

Atlantic Coast requests an exemption from 14 C.F.R. 91.9(b)(2). Section 91.9(b)(2) provides:

> (b) No person may operate a U.S.-registered civil aircraft …
>
> (2) For which an Airplane or Rotorcraft Flight Manual is not required by § 21.5 of this chapter, unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.

The UAS, given its small size and configuration, has no ability or place to carry such a flight manual on the aircraft, not only because there is no pilot on board, but because there is no room or capacity to carry such an item on the UAS.

The equivalent level of safety will be maintained by keeping the manufacturer's Training Guide and User Manual at the ground control point where the operator flying the UAS will have immediate access to it.

iii. 91.9(c): Civil Aircraft Flight Manual, Marking, and Placard Requirements

Atlantic Coast requests an exemption from 14 C.F.R. 91.9(c). This part provides:

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

As stated above, there is no current registration process for UAS; and the UAS, due to its small size, does not have room to contain a fireproof placard or to display aircraft marks in a conventional size. However, as a condition to the grant of the exemption, Atlantic Coast is willing to affix an aircraft mark to one or more of the "arms" of the UAS. The size of the marking will be determined by the size of the "arm" being used and may be less than one inch in size.

iv. 91.103: Preflight Action

Atlantic Coast requests an exemption from 14 C.F.R. 91.103. This regulation requires each PIC to take certain actions before flight to insure the safety of flight. As FAA approved rotorcraft flight

manuals will not be provided for the UAS, an exemption is needed. The PIC will take all actions following the DJI preflight inspection including reviewing weather, flight battery requirements, landing and takeoff distances and aircraft performance data before initiation of flight.

v. 91.105: Flight Crewmembers at Stations

Atlantic Coast requests an exemption from 14 C.F.R. 91.105. Atlantic Coast requests an exemption from 14 C.F.R. 91.105 since this part is not applicable due to the UAS carrying no flight crewmembers. However, to achieve an equivalent level of safety, Atlantic Coast will not operate the aircraft unless the same PIC is at the controls at all times.

vi. 91.109: Flight Instruction; Simulated Instrument Flight and Certain Tests

Atlantic Coast requests an exemption from 14 C.F.R. 91.109. Section 91.109 provides that no person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls. UAS and remotely piloted aircraft, by their design, do not have fully functional dual controls. Flight control is accomplished through the use of a control box that communicates with the aircraft via radio communications. The FAA has approved exemptions for flight training without fully functional dual controls for a number of aircraft and for flight instruction in experimental aircraft. The equivalent level of safety is provided because the UAS will not carry pilots or passengers, and relevant landowners will have prior notice of each flight.

vii. 91.113(b): Right-of-Way Rules

Atlantic Coast requests an exemption from 14 C.F.R. 91.113(b) to the extent that it applies to overhead aircraft operating at or above 500 feet above ground level as the UAS will be operating no higher than 400 feet above ground level. This part provides:

> (b) General. When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft. When a rule of this section gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear.

For example, if another aircraft is operating overhead at 10,000 feet above ground level, there is no danger posed to that other aircraft if the UAS is operating beneath 400 feet above ground level. However, as a condition to the approval of exemption, Atlantic Coast will operate its UAS to see and avoid and give way to other aircraft that should enter airspace at or below 400 feet above ground level.

viii. 91.119: Minimum Safe Altitudes

Atlantic Coast requests an exemption from 14 C.F.R. 91.119. Section 91.119 establishes safe altitudes for operation of civil aircraft. Section 91.119(c) prevents flying an aircraft at an altitude of less

than 500 feet or operating an aircraft closer than 500 feet to any person, vessel, vehicle, or structure. As this exemption requests authority to operate at altitudes up to 400 feet, an exemption is needed to allow such operations. As set forth herein, the UAS will never operate at higher than 400 feet above ground level. It will however be operated in a remote area on private property with the landowner's consent.

The equivalent level of safety will be achieved given the size, weight, limited speed of the UAS as well as the remote location where it is operated. No flight will be taken without the permission of the landowner or local officials. Because of the advance notice given to the landowner, all affected individuals will be aware of the planned flight. Compared to flight operations with aircraft or rotorcraft weighing far more than the three pounds proposed herein and the lack of flammable fuel on the UAS, any risk associated with the UAS operations is far less than those presently presented with conventional aircraft operating at or below 500 feet above ground level for environmental monitoring. In addition, the low-altitude operations of the UAS will ensure separation between these small-UAS operations and the operations of conventional manned aircraft that must comply with Section 91.119.

ix. 91.121: Altimeter Settings

Atlantic Coast requests an exemption from 14 C.F.R. 91.121. This regulation requires each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set ". . .to the elevation of the departure airport or an appropriate altimeter setting available before departure." As the UAS may not have a barometric altimeter, but instead a GPS altitude read out, an exemption is requested. An equivalent level of safety will be achieved by the operator confirming the altitude of the launch site shown on the GPS altitude indicator before flight as well as the operator receiving live feedback information about the UAS, including the height of the UAS, its forward velocity, and compass heading. The operator will be able to observe and control the maximum height of the UAS. Additionally, the UAS will be operated within the line of sight of the PIC.

x. 91.151(a): Fuel Requirements for Flight in Visual Flight Rules ("VFR") Conditions

Atlantic Coast requests an exemption from 14 C.F.R. 91.151(a). Section 91.151(a) prohibits an individual from beginning "a flight in an airplane under visual flight rules 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."

The battery powering the UAS provides approximately 25 minutes of powered flight making it impossible to meet the 30 minute reserve requirement in 14 C.F.R. §91.151. Given the limitations on the UAS's proposed flight area and the location of its proposed operations within a predetermined and remote area, a lower minimum battery power requirement in daylight or night VFR conditions is reasonable. Atlantic Coast believes that an equivalent level of safety can be achieved by limiting flights to 25 minutes or 25 percent of battery power, whichever happens first. This restriction would be more than adequate to return the UAS to its planned landing zone from anywhere in its limited and remote operating area.

xi. 91.203(a) & (b): Carrying Civil Aircraft Certification and Registration

Atlantic Coast requests an exemption from 14 C.F.R. 91.203 (a) and(b). The regulation provides in pertinent part:

> (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.

The UAS fully loaded weighs less than 3 pounds and is operated without an onboard pilot. As such, there is no ability or place to carry certification and registration documents or to display them on the UAS. An equivalent level of safety will be achieved by keeping these documents at the ground control point where the pilot flying the UAS will have immediate access to them, to the extent they are applicable to the UAS.

xii. 91.215: ATC Transponder and Altitude Reporting Equipment and Use

Atlantic Coast requests an exemption from 14 C.F.R. 91.215. This section requires that installed Air Traffic Control ("**ATC**") transponder equipment must meet specific performance and environmental requirements, and aircraft must be equipped with an operable coded radar beacon transponder.

There are presently no known commercially available ATC transponders that meet the payload requirements of a small UAS and are available at reasonable cost. However, because the UAS used by Atlantic Coast will not be flying into or near airports, and will fly no higher than 400 feet above ground level, there is very low risk of collision with any manned aircraft. In addition, because there will be no need to have contemporaneous communication with Air Traffic Control, due to the short distances, short flight times, and restricted altitude the UAS will operate within, Atlantic Coast requests an exemption from this section. Additionally, the UAS is too small to contain ATC transponder equipment in any form that is known to be available commercially.

xiii. 91.405 (a) & (d); 407 (a)(1); 409 (a)(2); 417(a) & (b): Maintenance Inspections

Atlantic Coast requests an exemption from 14 C.F.R. 91.405 (a) and (d); 407 (a)(1), 409(a)(2), and 417 (a) and (b). These regulations require that an aircraft operator or owner "shall have that 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 . . .," and others shall inspect or maintain the aircraft in compliance with Part 43.

Given that these sections and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply to Atlantic Coast. Maintenance will be accomplished by the operator pursuant to

the manufacturer's Phantom 2 Vision+ User Manual and Phantom Pilot Training Guide. An equivalent level of safety will be achieved because these small UAS are very limited in size and will carry a small camera and operate only in remote and restricted areas for limited periods of time. If mechanical issues arise, the UAS can land immediately and will be operating from no higher than 400 feet above ground level. The operator will ensure that the UAS is in working order prior to initiating flight, perform required maintenance, and keep a log of any maintenance performed. Moreover, the operator is the person most familiar with the UAS and best suited to maintain the UAS in an airworthy condition to provide the equivalent level of safety.

6) Summary for the Federal Register

The following summary is provided for publication in the Federal Register in accord with 14 C.F.R. Part 11:

Atlantic Coast, a nonprofit land trust, requests exemptions from the following rules:

> 14 C.F.R. 21, Subpart H; 14 C.F.R. § 43.7; 14 C.F.R. § 43.11; 14 C.F.R. § 45.21; 14 C.F.R. § 45.23(b); 14 C.F.R. § 45.25; 14 C.F.R. § 45.27; 14 C.F.R. § 45.29; 14 C.F.R. § 47.3(b)(2); 14 C.F.R. § 61, Subpart E; 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. § 91.105; 14 C.F.R. § 91.109; 14 C.F.R. § 91.113(b); 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; 14 C.F.R. § 91.215; 14 C.F.R. § 91.405(a) and (d); 14 C.F.R. § 91.407(a)(1); 14 C.F.R. § 91.409(a)(2); 14 C.F.R. § 417(a) and (b)

to operate commercially a small unmanned aircraft vehicle (three pounds or less) to monitor, map, aerially photograph, survey and perform usual inspections by air of conservation forest, wildlife and ecologically important resources and property for environmental purposes.

Allowing small UAS to be used for environmental conservation, research, educational, and monitoring purposes enhances safety by eliminating risks associated with conventional surveillance operations, which traditionally use larger manned aircraft and must operate at low altitudes, weigh thousands of pounds, and carry large amounts of fuel. Approval of the Exemptions, in contrast, would allow a battery operated small UAS weighing less than three pounds and no human passengers to complete the same job with virtually no risk. Under these conditions, the **Phantom** will provide an equivalent, if not higher, level of safety in the environmental surveillance field, which supports the grant of this Request and Application for Exemptions.

7) Privacy

All flights will occur over private or controlled access property with the landowner's prior consent and knowledge. Because overflight areas will be remote and rural, there is little to no chance that there will be inhabited houses in the visual area or other people who have not consented to being in close proximity with the **Phantom**. No attempt will be made to identify any individuals filmed during the flights except in cases where those persons are conducting unauthorized activities, are trespassing upon

the Atlantic Coast conservation easement lands, or are damaging any of the land, forests, wildlife or natural resources under the management responsibility of Atlantic Coast, or interfering with any of Atlantic Coast's conservation, management, or monitoring operations.[13]

8) Conclusion

Satisfaction of the criteria provided in Section 333 of the Reform Act of 2012 – size, weight, speed, operating capabilities, proximity to airports and populated areas, operation within visual line of sight, and national security – provide more than adequate justification for the grant of the requested Exemptions allowing Atlantic Coast to use the **Phantom** for and during the management, research, and educational operations of Atlantic Coast.

Respectfully submitted on Behalf of Atlantic Coast,

Neil C. Johnston (Sr.)
For the Firm

Carolyne B. Jones
For the Firm

CBJ:mmm

Exhibits Enclosed

A. Atlantic Coast IRC Section 501(c)(3) Designation Letter from the Internal Revenue Service
B. CV of Robert D. Keller, Ph.D.
C. DJI – Phantom 2 Vision+ User Manual
D. Example of Deed of Conservation Easement used by Atlantic Coast
E. DJI – Phantom 2 Vision+ Specifications
F. Certificates of Training
G. DJI – Phantom 2 Vision+ Training Guide
H. Photographs of Conservation Easement Lands
I. Materials from Chattahoochee Technical College - UAV Training Course

cc: Robert D. Keller, Ph.D., Chief Executive Officer
Atlantic Coast Conservancy, Inc.

Mr. Walter C. Ernest, IV, Director of Operations
Pelican Coast Conservancy

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[13] See Photographs, "Exhibit H" attached hereto.