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

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

August 10, 2015

Exemption No. 12386
Regulatory Docket No. FAA–2015–1811

Mr. Ryan Summerfield
Cinematographer
210 Little Kinston Road
Surf City, NC 28445

Dear Mr. Summerfield:

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 May 12, 2015, you petitioned the Federal Aviation Administration (FAA) for an exemption. You requested to operate an unmanned aircraft system (UAS) to conduct coastal tourism awareness, business relocation development, and real estate cinematography and photography.

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.

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the

aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection[1]. The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (*see* Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA−2014−0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA−2014−0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

Having reviewed your reasons for requesting an exemption, I find that—

- They are similar in all material respects to relief previously requested in Grant of Exemption Nos. 11062, 11109, 11112, and 11213;
- The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, and 11213 also apply to the situation you present; and
- A grant of exemption is in the public interest.

Our Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, Mr. Ryan Summerfield is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

[1] Aerial data collection includes any remote sensing and measuring by an instrument(s) aboard the UA. Examples include imagery (photography, video, infrared, etc.), electronic measurement (precision surveying, RF analysis, etc.), chemical measurement (particulate measurement, etc.), or any other gathering of data by instruments aboard the UA.

Conditions and Limitations

In this grant of exemption, Mr. Ryan Summerfield 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 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 August 31, 2017, unless sooner superseded or rescinded.

Sincerely,

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

Enclosures

May 12, 2015

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

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

Dear Sir or Madam,
This petition is to inform that individual Ryan Summerfield, seeks exemption pursuant to the FAA Modernization and Reform Act of 2012 and the procedures contained within 14 C.F.R. 11, from the Federal Aviation Regulations ("FARs") listed below so that Ryan Summerfield, may operate a small ultra-light weight unmanned aircraft system ("UAS") commercially in airspace regulated by the Federal Aviation Administration ("FAA").

This petition is, in most regards, similar to granted exemption No. 11138 both in operational approach (closer than 250') and equipment being utilized (DJI Phantom 2). As described herein Ryan Summerfield, professional cinematographer and photographer with over ten years of hands-on experience in the film and production industry formally requests an exemption. In the early stages of building UAS systems for testing and research purposes, Ryan Summerfield has since demonstrated the ethical and economical use of UAS systems for the use of: Geographical Studies, Coastal Mapping, and Real Estate Commerce. This is only available following an exemption and approval by the FAA.

Ryan Summerfield's exemption request would permit operation of an ultra-light weight, unmanned (piloted by remote control) and comparatively inexpensive UAS in tightly controlled and limited airspace. Predetermined in areas away from general public, airports, heliports and vehicular traffic for community videos, and within property boundaries for individual land-owners on which the concurrent film and photo would take place. Ryan Summerfield has instilled safety protocols and controls to avoid and prevent public hazard, as well as manned aircraft hazards/catastrophe. This will act to further safety protocols exclusive to lightweight UAS's specific to commercial video and photography usage as Ryan Summerfield records flight data and other information

gained through permitted flight operations to share with the FAA through any required FAA reports to assist with future protocol and safety regulation.

Granting Ryan Summerfield's request comports with the Secretary of Transportation's (FAA Administrator's) responsibilities and authority to not only integrate UAS's into the national airspace system, but to "...establish requirements for the safe operation of such aircraft systems [UAS's] in the national airspace system" under Section 333(c) of the Reform Act specific to the use of UAS's for research in commercial, and photography uses. Further, Ryan Summerfield will conduct his operations in compliance with the protocols described herein or as otherwise established by the FAA. For the reasons stated below Ryan Summerfield respectfully requests the grant of an exemption allowing operation of ultra-light weight, remote controlled UAS's for community awareness to benefit/stimulate attraction to the Coastal North Carolina region, and to enhance tourism projects, research and development, and to establish a safety protocol for users alike. Both of which will promote local economic growth through increased employment and increased tourism interest. With public safety at the top of the list, Ryan Summerfield aims to use this exemption as a standard for safe protocol and reliable UAS systems management.

I. Contact Information:

Ryan Summerfield
Cinematographer
210 Little Kinston Road
Surf City, NC 28445
Mobile: (910)803-4214
Email: ripod704@aol.com

II. The Specific sections of Title 14 of the Code of Federal Regulations from which Ryan Summerfield requests exemption:

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

III. The extent of relief Ryan Summerfield seeks and the reason they seek such relief:

Ryan Summerfield submits this application in accordance with the Reform Act, 112 P.L. 95 §§ 331-334, seeking relief from any currently applicable FARs operating to prevent Commercial, Tourism, Mapping, and other flight operations within the national airspace system. The Reform Act in Section 332 provides for such integration of civil unmanned aircraft systems into our national airspace system as it is in the public's interest to do so. Ryan Summerfield's, ultra-light weight UAS meets the definition of "small unmanned aircraft" as defined in Section 331 and therefore the integration of the ultra-light weight

UAS is expressly contemplated by the Reform Act. Ryan Summerfield would like to operate his ultra-light weight UAS prior to the time period by which the Reform Act requires the FAA to promulgate rules governing such craft. The Reform Act guides the Secretary in determining the types of UAS's that may operate safely in our national airspace system. Considerations include: The weight, size, speed and overall capabilities of the UAS's; whether the UAS will be operated near airports or heavily populated areas; and, whether the UAS will be operated by line of sight. 112 P.L. 95 § 333 (a). Each of these items are in favor of an exemption for Ryan Summerfield. His UAS utilizes four (4) counter-rotating propellers for balance, control and stability. His UAS is equipped with GPS and auto return safety technology, and weighs less than ten (10) pounds (far below the maximum 55 pound limit); including camera and full payload. Ryan Summerfield considers safety as a foremost component for each flight. A checklist of all solder points, screws, and connectors is provided before each flight. Orange cones are used to designate a controlled lift-off, and landing area. His small unmanned aircraft is designed to hover in place via GPS and operate in less than a fifteen (15 mph) wind. For safety, stability and overall preservation of safety, he will not operate in winds exceeding ten (10 mph). Built in safety systems include a GPS mode that allows the UAS to hover in place when radio controls are released, as well as a radio switch to disengage GPS and manually control the UAS when needed. In the event that pilot radio communication is lost the UAS is designed to slowly descend to the point of takeoff, as well as incorporating a designated “Fail-safe” toggle switch to initiate the UAS to slowly land at the home point of takeoff. Ryan Summerfield will not operate his UAS near Airports, Hospitals nor Police Heliports, and will not operate near areas where general public is within fifty to one hundred (50-100) yards depending on location, conditions and most of all, permission. Specializing in low-altitude imagery, Ryan Summerfield will not exceed altitudes of (250) feet AGL on any given project. Ryan Summerfield will be prepared to land/abort immediately to the nearest and safest ground station should a manned aircraft approach his location or should he suspect manned aircraft may approach near the flying location. Ryan Summerfield will utilize an operator and visual spotter with an appropriate certification who has the ability to monitor air and ground communications on all flights. Two-way radio is used for immediate communication, if needed, however the operator and spotter remain together in close proximity at all times. The UAS is capable of vertical and horizontal operations, and will only be flown within line of sight of the operator. Utilizing battery power rather than combustible fuels, flights generally last between ten (10) to twelve (12) minutes, with an altitude under (250) feet AGL programmed in the UAS firmware settings. Ryan Summerfield will utilize a properly stored and fully charged battery with each flight as a safety precaution; full flight time limit for each battery is twenty-five (25) minutes. However, Ryan Summerfield limits each flight to twelve (12) minutes maximum, leaving a safety threshold of approximately fifty percent (50%) remaining battery power upon grounding the UAS. Ryan Summerfield will not operate the UAS at or below manufacturers recommend minimum charge levels for operation; preferring to remain well within a safe operating range to insure adequate communication between radio control and UAS to eliminate potential for hazard. Reserve batteries will be at hand with each exercise to insure replacement for sufficient safe level of operation. Ryan Summerfield will exercise extreme caution when operating his UAS/ultra-light weight

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

IV. How Ryan Summerfield’s request will benefit the public as a whole:
Aerial videography for geographical awareness as well as tourism and real-estate cinema has been utilized for years through the use of manned, fixed wing aircraft and helicopters. Congress has proclaimed that it is in the public’s interest to integrate commercially flown UAS's into the national airspace system, hence the passing of the Reform Act. Granting Ryan Summerfield’s exemption request furthers the public interest through visual awareness of the geographical benefits in the coastal North Carolina region. His ultra- light weight UAS is battery powered and creates no environment impacting emissions or fumes. The consequence of the ultra- light weight UAS malfunctioning is far less than a full size helicopter or fixed wing aircraft; which both contain combustible fuel and can cause catastrophic devastation in the unfortunate event of malfunction. The public’s interest is furthered by minimizing ecological and crash threat by permitting aerial video/photo capture through the battery operated ultra-light weight UAS. Permitting Ryan Summerfield to immediately fly within controlled and low-altitude air space furthers economic growth and development catering to the UAS sector of coastal North Carolina. Granting his exemption request substantially furthers the economic impact for the Surf City, NC community for companies looking to relocate or build in the area as well as individuals and companies seeking geographical information such as: coastal surveying, shoreline erosion mapping, and property development.

V. Reasons why Ryan Summerfield’s exemption will not adversely affect safety or how the exemption will provide a level of safety at least equal to existing rule:
Ryan Summerfield’s exemption will not adversely affect safety. The following represents enhancements to current aerial videography and photography protocol.
The UAS weighs less than 10 pounds complete with payload. This is a DJI Phantom 2 UAS with GoPro Hero 4 Camera.
• The operator will only operate the UAS below 250 feet (within the 400 foot permissible ceiling set by the FAA Modernization and Reform Act of 2012);
• The operator only operates the UAS for 10-15 minutes per flight;
• The operator will land the UAS prior to manufacturer recommended minimum level of battery power;
• The operator will command the UAS through 2.4ghz remote only by line of sight;
• Ryan Summerfield will utilize and adhere guidance from a pilot with experience in manned and radio controlled aircraft operation;
• The UAS has GPS, a flight safety feature whereby it hovers and then slowly descends to the landing point if communication with the remote control pilot is lost;
• The operator will actively analyze flight data and other sources of information to constantly update and enhance safety protocols;

• The operator will only operate in reasonably safe environments, away from power lines, elevated lights, airports and actively populated areas;
• The operator will conduct extensive pre-flight inspections and protocol, during which safety carries primary importance;
• The operator will obtain all necessary permissions prior to operation; and,
• He will have procedures in place to abort flights in the event of safety breaches or potential danger. Ryan Summerfield's safety protocols provide a level of safety equal to or exceeding existing rules. The potential loss of life is diminished because the UAS carries no passengers, and only operates in specific areas away from mass populations. There is No fuel on board a UAS and thus the potential for fire or explosions is greatly diminished. The small size and extreme maneuverability of the UAS allows for it to be remotely piloted away from and avoid hazards quickly and safely.

VI. A summary the FAA may publish in the Federal Register:
A. 14 C.F.R. 21 and 14 C.F.R. 91: Airworthiness Certificates, Manuals and the Like.
14 C.F.R. 21, Subpart H, entitled Airworthiness Certificates, sets forth requirements for procurement of necessary airworthiness certificates in relation to FAR § 91.203(a)(1). The size and weight of Ryan Summerfield's UAS permits exemption from Part 21 because the UAS meets (and exceeds) an equivalent level of safety pursuant to Section 333 of the Reform Act. The FAA is authorized to exempt aircraft from the airworthiness certificate requirement under both the Act (49 U.S.C. § 44701 (f)) and Section 333 of the Reform Act. Both pieces of legislation permit the FAA to exempt UAS's from the airworthiness certificate requirement in consideration of the weight, size, speed, maneuverability and proximity to areas such as airports and dense populations. Ryan Summerfield's, UAS meets or exceeds each of the elements.

14 C.F.R. 91.7(a) prohibits the operation of an aircraft without an airworthiness certificate. As no such certificate will be applicable in the form contemplated by the FARs, this Regulation is inapplicable.
14 C.F.R. § 91.9 (b) (2) requires an aircraft flight manual in the aircraft. As there are no on board pilots or passengers, and given the size of the UAS's, this Regulation is inapplicable. An equivalent level of safety will be achieved by maintaining a safety/flight manual delineating areas of where safety can be defined.[3] The FAA has previously issued exemptions to this regulation in Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167, 10167A, 10602, 10700 and 32827.
14 C.F.R. § 91.121 regarding altimeter settings is inapplicable as the UAS utilizes electronic global positioning systems with a barometric sensor.
14 C.F.R. § 91.203 (a) and (b) provides for the carrying of civil aircraft certifications and registrations. They are inapplicable for the same reasons described above. The equivalent level of safety will be achieved by maintaining any such required certifications and registrations by the FAA for Ryan Summerfield.

B. 14 C.F.R. § 45.23: Marking of the Aircraft.
Applicable Codes of Federal Regulation require aircraft to be marked according to certain specifications. UAS are, by definition, unmanned. They therefore do not have a cabin, cockpit or pilot station on which to mark certain words or phrases. Further,

two-inch lettering is difficult to place on such small aircraft with dimensions smaller that minimal lettering requirement. Regardless, Ryan Summerfield will mark his UAS in the largest possible lettering by placing the word “EXPERIMENTAL” on its fuselage as required by 14 C.F.R. §45.29 (f) so that the pilot, or anyone assisting the pilot as a spotter with the UAV will see the markings. The FAA has previously issued exemptions to this regulation through Exemptions Nos. 8738, 10167, 10167A and 10700.

C. 14 C.F.R. § 61.113: Private Pilot Privileges and Limitations: PIC.
Pursuant to 14 C.F.R. §§ 61.113 (a) & (b), private pilots are limited to non-commercial operations. Ryan Summerfield, can achieve an equivalent level of safety as achieved by current Regulations because the UAS does not carry any pilots or passengers. Further, Ryan Summerfield will adhere a private pilot with experience in manned and radio controlled aircraft. The risks attended to the operation of the UAS are far less than the risk levels inherent in the commercial activities outlined in 14 C.F.R. § 61, et seq. Thus, allowing the operation of the UAS to meet and exceed current safety levels in relation to 14 C.F.R. §61.113 (a) & (b).

D. 14 C.F.R. 91.119: Minimum Safe Altitudes.
14 C.F.R. § 91.119 prescribes safe altitudes for the operation of civil aircraft. It allows helicopters to be operated at lower altitudes in certain conditions. Their UAS will never operate at an altitude greater than 250 AGL; in accordance with the standard of 400 AGL. Ryan Summerfield will operate his UAS in safe areas away from public and traffic, providing a level of safety at least equivalent to or below those in relation to minimum safe altitudes. Given the size, weight, maneuverability and speed of the UAS, an equivalent or higher level of safety will be achieved.

E. 14 C.F.R. 91.405 (a); 407 (a) (1); 409 (a) (2); 417(a) & (b): Maintenance Inspections.
The above-cited Regulations require, amongst other things, aircraft owners and operators to “have [the] aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter. . . .”
These Regulations only apply to aircraft with an airworthiness certificate. They will not, therefore, apply to Ryan Summerfield’s, UAS. However, as a safety precaution Ryan Summerfield will inspect the UAS before and after each flight. Applying proper techniques to review and ensure a safe and reliable flight system.

A Summary the FAA may Publish in the Federal Register: A. 14 C.F.R. 21 and 14 C.F.R. 91: Airworthiness Certificates, Manuals and the Like. 14 C.F.R. 21, Subpart H, entitled Airworthiness Certificates, sets forth requirements for procurement of necessary airworthiness certificates in relation to FAR § 91.203(a)(1). The size and weight of Ryan Summerfield’s UAS permits exemption from Part 21 because Ryan Summerfield’s UAS meets an equivalent level of safety pursuant to Section 333 of the Reform Act. The FAA is authorized to exempt aircraft from the airworthiness certificate requirement under both the Act (49 U.S.C. § 44701 (f)) and Section 333 of the Reform Act. Both pieces of legislation permit the FAA to exempt UAS’s from the airworthiness certificate requirement in consideration of the weight, size, speed, maneuverability and proximity

to areas such as airports and dense populations. Ryan Summerfield's UAS meets or exceeds each of these elements. 12 C.F.R. 91.7(a) prohibits the operation of an aircraft without the airworthiness certificate. As no such certification will be applicable in the form contemplated by the FARs, this regulation is inapplicable. 14 C.F.R. § 91.9 (b) (2) requires an aircraft flight manual in the aircraft. As there are no pilots or passengers, and given the size of the UAS, this regulation is inapplicable. An equivalent level of safety will be achieved by maintaining a ground manual. The FAA has previously issued exemptions to this regulation in Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167. A precautionary maintenance program will be utilized that involves regular software updates and curative measures for any damaged hardware. Therefore, an equivalent level of safety will be achieved.

In summary, Ryan Summerfield seeks an exemption from the following regulations:

14 C.F.R. 21, subpart H; 14 C.F.R. 45.23(b); 14 C.F.R. §§ 61.113 (a) & (b); 14 C.F.R. § 91.7 (a); 14 C.F.R. § 91.9 (b)(2); 14 C.F.R. § 91.103(b); 14 C.F.R. § 91.109; 14 C.F.R. § 91.119; 14 C.F.R. § 91.121; 14 C.F.R. § 91.151(a); 14 C.F.R. §§ 91,203(a) and (b); 14 C.F.R. § 91.405 (a); 14 C.F.R. § 91.407 (a)(1); 14 C.F.R § 91.409 (a)(2); 14 C.F.R. § 91.409 (a)(2); and 14 C.F.R. §§ 91.417 (a) & (b) to commercially operate a small, unmanned vehicle/ultra-lightweight unmanned aircraft for coastal tourism awareness, business relocation development, and real estate cinema and photography to help attract new businesses, and economic growth in the coastal Carolina region. Currently, tourism and awareness projects rely primarily on the use of larger aircraft with combustible fuel, posing potential threat risk to the public. Granting Ryan Summerfield's request for an exemption will reduce current risk levels as well as enhancing safety protocols for the usage of the UAS system with developing and implementing features to enhance the reliability and safety of each flight. Ryan Summerfield's UAS will be operated at lower altitudes than the (400ft AGL) ceiling, rather, staying below the 250 feet operating range. Ryan Summerfield's UAS weighting less than 10 pounds and traveling at lower speeds within limited areas will provide an equivalent level of safety as that achieved under current FARs. Ryan Summerfield's level of safety and awareness will prove to become a necessity as he assesses and treats every flight operation with care, integrity, privacy, and overall respect for FAA Modernization and Reform Act or 2012. Accordingly, Ryan Summerfield respectfully and formally requests that the FAA grant his exemption request.

Respectfully submitted,

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