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

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

August 24, 2015

Exemption No. 12564
Regulatory Docket No. FAA−2015−2390

Mr. J. August Shoemaker, Esq.
Counsel for Pinpoint Services, Inc.
100 North 12th Street, Suite 605
Lincoln, NE 68508

Dear Mr. Shoemaker:

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 28, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Pinpoint Services, Inc. (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct inspection and maintenance of cellular communication towers.

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

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

Airworthiness Certification

The UAS proposed by the petitioner are the DJI Phantom 2 Vision+ and DJI Phantom 3.

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 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, Pinpoint Services, 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, Pinpoint Services, Inc. is hereafter referred to as the operator.

[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.

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+ and DJI Phantom 3 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

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC

Regulatory Docket No. _____

IN THE MATTER OF THE PETITION FOR EXEMPTION OF:
PINPOINT SERVICES, INC.
FOR AN EXEMPTION SEEKING RELIEF FROM THE REQUIREMENTS OF TITLE 14 OF THE CODE OF FEDERAL REGULATION SECTIONS 61.101(e)(4) AND (e)(5), 61.113(a) AND (b), 91.7(a), 91.119(b) AND (c), 91.121(a), 91.151(a), 91.405(a), 91.407(a)(1), 91.409(a)(1) AND (a)(2), AND 91.417(a) AND (b) CONCERNING COMMERCIAL OPERATION OF THE DJI PHANTOM 2 VISION+ AND DJI PHANTOM 3 UNMANNED AIRCRAFT SYSTEMS PURSUANT TO SECTION 333 OF THE FAA MODERNIZATION AND REFORM ACT OF 2012 (PUBLIC LAW 112-95)

Submitted on May 28, 2015

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GLOSSARY OF ABBREVIATIONS

AGL	Above Ground Level
ATC	Air Traffic Control
C.F.R.	Code of Federal Regulations
FAA	Federal Aviation Administration
FRMA	FAA Modernization and Reform Act of 2012
GCS	Ground Control Station
GPS	Global Positioning System
NAS	National Airspace System
PIC	Pilot In Command
Pinpoint Services	Pinpoint Services, Inc.
Section 333	FAA Modernization and Reform Act of 2012 Section 333
UA	Unmanned Aircraft
UAS	Unmanned Aircraft System
VFR	Visual Flight Rules
VO	Visual Observer
VTOL	Vertical Takeoff and Landing

SUMMARY

Pinpoint Services, Inc. (hereinafter Pinpoint Services) seeks exemptions from the requirements of 14 C.F.R §§ 61.101(e)(4) and (e)(5), 61.113(a) and (b), 91.7(a), 91.119(b) and (c), 91.121(a), 91.151(a), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (a)(2), and 91.417(a) and (b) to operate Unmanned Aircraft Systems (UAS) pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (FMRA). This exemption will permit Pinpoint Services to operate Unmanned Aircraft Systems for the commercial purpose of inspecting and maintaining its network of cellular communication towers. The Federal Aviation Administration (FAA) has granted similar exemptions in several circumstances including Exemption No. 11411 which is equivalent in all material respects.

INTRODUCTION AND INTERESTS OF THE PETITIONER

Pinpoint Services is engaged in the service and maintenance of cellular towers across the country in both rural and metropolitan areas. Pinpoint Services seeks to improve the safety of its operations through the use of its newly acquired DJI Phantom 2 Vision+ and DJI Phantom 3 UAS. As set forth in this petition, Pinpoint Services seeks to commercially operate these UAS in both rural and metropolitan areas of the United States for the purpose of diagnosing potential tower problems before manned crews perform maintenance and repairs.

BACKGROUND

Pinpoint Services seeks an exemption to operate its Phantom 2 Vision+ and Phantom 3 UAS for compensation or hire within the National Airspace System (NAS).

The Phantom 2 Vision+ UAS is comprised of a vertical takeoff and landing (VTOL) Unmanned Aircraft (UA) and a transportable Ground Control Station (GCS). The Phantom 2 Vision+ weighs 2.74 pounds, has a diagonal size of 13.78 inches, and can reach a maximum

speed of 0.56 miles per hour (0.49 knots per hour). The Phantom 2 Vision+ is equipped with four propellers each driven by a Lithium Polymer battery powered electric motor.

The Phantom 3 UAS is comprised of a vertical takeoff and landing (VTOL) Unmanned Aircraft (UA) and a transportable Ground Control Station (GCS). The Phantom 3 UA weighs 2.82 pounds, while having a diagonal size of 23.22 inches and maximum speed of 0.60 mph (0.52 kph). The Phantom 3 UA is equipped with four propellers, each being driven by a Lithium Polymer battery powered electric motor.

The Phantom 2 Vision+ and Phantom 3 UA that will be operated by Pinpoint Services will be registered in accordance with 49 U.S.C. 44103, *Registration of Aircraft*, as well as 14 C.F.R. Part 47, *Aircraft Registration*, and marked in accordance with 14 C.F.R. Part 45, *Identification and Registration Marking*.

BASIS FOR PETITION

Petitioner, Pinpoint Services, by and through undersigned counsel, pursuant to the provisions of the Federal Aviation Regulations (14 C.F.R. § 11.61) and the FAA Modernization and Reform Act of 2012, Section 333, *Special Rules for Certain Unmanned Aircraft Systems*, hereby petitions the Administrator to operate the Phantom 2 Vision+ and Phantom 3 UAS in the NAS and for an exemption from the requirements of 14 C.F.R §§ 61.101(e)(4) and (e)(5), 61.113(a) and (b), 91.7(a), 91.119(b) and (c), 91.121(a), 91.151(a), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (a)(2), and 91.417(a) and (b).

Relief from certain requirements of Section 61.101, entitled *Recreational pilot privileges and limitations*, subsections (e)(4) and (e)(5) and Section 61.113, entitled *Private pilot privileges and limitations: Pilot in command*, subsections (a) and (b) is requested by Pinpoint Services to the extent necessary to allow a Pilot in Command (PIC) holding a recreational or private pilot

certificate and who has completed the Phantom 2 Vision+ and Phantom 3 UAS training and currency requirements, to conduct the proposed flight operations. Pinpoint Services submits that the conditions and limitations set forth herein will ensure the safety of the NAS, as well as the safety of persons or property on the ground.

Pinpoint Services seeks relief from Section 91.7, entitled *Civil aircraft airworthiness*, subsection (a) because the Phantom 2 Vision+ and Phantom 3 UAS do not require an airworthiness certificate in accordance with 14 C.F.R. Part 21, Subpart H. Pinpoint Services submits that, prior to every operation, it will ensure that the UAS are in an airworthy condition and that the aircraft are in a condition for safe flight by determining that they are in compliance with the Flight Manuals and performing regular maintenance and inspections.

Pinpoint Services seeks relief from Section 91.119, entitled *Minimum safe altitudes: General*, subsections (b) and (c) in order to operate in rural and metropolitan areas. The company will assure the safety of nearby persons and property in these areas through the use of adequate communication and notice to third parties including local Air Traffic Control (ATC), maintenance of a 500 foot buffer to all persons and property except where adequate notice has been given and adequate barriers exist to prevent harm, and by continuously flying at or below an altitude of 500 feet above ground level (AGL).

Pinpoint Services also seeks an exemption from the requirements of Section 91.121, entitled *Altimeter settings*, subsection (a) as the UA will not have typical barometric altimeters on board. However, altitude information will be provided to the PIC via Global Positioning System (GPS) equipment and a radio communications telemetry data link, which downlinks from the UA to the GCS for active monitoring of the flight path. This altitude information,

combined with Pinpoint Services's operation of each UA within visual line of sight, at or below 500 feet AGL, will ensure a level of safety equivalent to that required by Section 91.121(a).

Additionally, Pinpoint Services seeks an exemption from the requirements of Section 91.151(a), entitled *Fuel requirements for flight in VFR conditions*. Pinpoint Services submits that it will maintain safe operations by terminating flights of the battery-powered Phantom UA after 20 minutes of continuous flight, which would allow for around five minutes of battery power remaining.

In consideration of the size, weight, speed, and limited operating area associated with the unmanned aircraft and their operation, Pinpoint Services' operation of these UAS meets the conditions of Section 333 and therefore, will not require an airworthiness certificate in accordance with 14 C.F.R. Part 21, Subpart H. Accordingly, Pinpoint Services requests relief from Sections 91.405(a), 91.407(a)(1), 91.409(a)(1) and (a)(2), and 91.417(a) and (b), as these sections set forth maintenance requirements that only apply to aircraft with airworthiness certificates.

Pinpoint Services submits that the requested relief is proper as it will ensure a level of safety equivalent to that required by relevant regulations. Pinpoint Services will use its authorized technicians to perform maintenance, alterations, and preventive maintenance on the UAS using the methods, techniques, and practices prescribed in the manufacturer's maintenance manual. Furthermore, the company will document and maintain all maintenance records for both the Phantom 2 Vision+ and Phantom 3 UAS. Pinpoint Services will maintain proper positioning of the aircraft through monitoring the UA's GPS coordinates and line of sight visual verification. It will ensure proper functioning of the UA by regularly maintaining the aircraft and by performing preflight inspections prior to every operation. Finally, it will ensure that all PICs

operating the UAS will have proper training on the appropriate system and will have either a recreational or private pilot license.

In accordance with 14 C.F.R. § 11.81, Pinpoint Services provides the following information in support of its petition for exemption:

A. Name and Address of the Petitioner.

The name and address of the Petitioner is:

Pinpoint Services, Inc.
613 Patterson St.
PO Box 490
Cambridge, Nebraska 69022

The point of contact for this Petition and specific contact information is as follows:

J. August Shoemaker
100 N. 12th St. Suite 605
Lincoln, Nebraska 68508
Tel: (402) 304-4356
Email: shoemaker.j.a@gmail.com

B. The Specific Sections of 14 C.F.R. from Which Pinpoint Services Seeks Exemption.

1. Pinpoint Services Seeks Exemption from the Requirements of 14 C.F.R. § 61.101(e)(4) and (e)(5).

Section 61.101, entitled *Recreation pilot privileges and limitations,* subsections (e)(4) and (e)(5) provide the following:

> Except as provided in paragraphs (d) and (i) of this section, a recreational pilot may not act as pilot in command of an aircraft —
>
> (4) For compensation or hire;
>
> (5) In furtherance of a business;

2. Pinpoint Services Seeks Exemption from the Requirements of 14 C.F.R. § 61.113(a) and (b).

Section 61.113, entitled *Private pilot privileges and imitations: Pilots in command,* subsections (a) and (b) provide the following:

> (a) No person who holds a private pilot certificate may act as a pilot in command (PIC) of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as PIC of an aircraft.
>
> (b) A private pilot may, for compensation or hire, act as PIC of an aircraft in connection with any business or employment if—
>
> (1) The flight is only incidental to that business or employment; and
>
> (2) The aircraft does not carry passengers or property for compensation or hire.

3. Pinpoint Services Seeks Exemption from the Requirements Of 14 C.F.R. § 91.7(a).

Section 91.7, entitled *Civil aircraft airworthiness*, subsection (a), states the following:

> (a) No person may operate a civil aircraft unless it is in an airworthy condition.

4. Pinpoint Services Seeks Exemption from the Requirements Of 14 C.F.R. § 91.119(b) and (c).

Section 91.119, entitled *Minimum safe altitudes: General,* subsections (b) and (c) state:

> Except when necessary for takeoff and landing, no person may operate an aircraft below the following altitudes...
>
> (b) *Over congested areas*. Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.
>
> (c) *Over other than congested areas*. an altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

5. Pinpoint Services Seeks Exemption from the Requirements of 14 C.F.R. § 91.121(a).

Section 91.121, entitled *Altimeter settings*, subsection (a) states:

> (a) Each person operating an aircraft shall maintain the cruising altitude or flight level of that aircraft, as the case may be, by reference to an altimeter that is set, when operating—
>
> (1) Below 18,000 feet MSL, to—
>
> (i) The current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft;
>
> (ii) If there is no station within the area prescribed in paragraph (a)(1)(i) of this section, the current reported altimeter setting of an appropriate available station; or
>
> (iii) In the case of an aircraft not equipped with a radio, the elevation of the departure airport or an appropriate altimeter setting available before departure;

6. Pinpoint Services Seeks Exemption from the Requirements of 14 C.F.R. § 91.151(a).

Section 91.151, entitled *Fuel requirements for flight in VFR conditions,* subsection (a) states:

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

7. Pinpoint Services Seeks Exemption from the Requirements of 14 C.F.R. § 91.405(a).

Section 91.405(a), entitled *Maintenance required,* states:

> Each owner or operator of an aircraft—
>
> (a) 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;

8. Pinpoint Services Seeks Exemption from the Requirements of 14 C.F.R. § 91.407(a)(1).

Section 91.407(a)(1), entitled *Operation after maintenance, preventative maintenance, rebuilding, or alteration,* states:

> (a) No person may operate any aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless—
>
> (1) It has been approved for return to service by a person authorized under § 43.7 of this chapter;

9. Pinpoint Services Seeks Exemption from the Requirements of 14 C.F.R. § 91.409(a)(1) and (a)(2).

Section 91.409, entitled *Inspections,* subsections (a)(1) and (a)(2) state:

> (a) Except as provided in paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had—
>
> (1) an annual inspection in accordance with part 43 of this chapter and has been approved for return to service by a person authorized by § 43.7 of this chapter; or
>
> (2) an inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

10. Pinpoint Services Seeks Exemption from the Requirements of 14 C.F.R. § 91.417(a)(1) and (a)(2).

Section 91.417, entitled *Maintenance records*, subsections (a) and (b), state the following:

> (a) Except for work performed in accordance with §§ 91.411 and 91.413, each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:
>
> (1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include--
>
> (i) A description (or reference to data acceptable to the Administrator) of the work performed; and
>
> (ii) The date of completion of the work performed; and

(iii) The signature, and certificate number of the person approving the aircraft for return to service.

(2) Records containing the following information:

(i) The total time in service of the airframe, each engine, each propeller, and each rotor.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.

(iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revision date. If the AD or safety directive involves recurring action, the time and date when the next action is required.

(vi) Copies of the forms prescribed by § 43.9(d) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

(b) The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records specified in paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator under § 43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service.

C. The Extent of Relief Pinpoint Services Seeks and the Reason Pinpoint Services Seeks the Relief

1. Extent of Relief Pinpoint Services Seeks and the Reason Pinpoint Seeks Relief from 14 C.F.R. §§ 61.101(e)(4) and (e)(5) and 61.113(a) and (b).

Section 61.101(e)(4) and (e)(5) and Section 61.113(a) and (b) limit those holding recreational or private pilot certificates to non-commercial activities. 14 C.F.R. §§ 61.101(e)(4) and (e)(5), 14 C.F.R. 61.113(a) and (b). Pinpoint Services seeks an exemption from these requirements to improve the safety of their operations and will ensure sufficient safeguards are in place to achieve an equivalent level of safety to that provided in the regulations. All persons operating the UAS will have at least a recreational pilot certificate, guaranteeing a level of knowledge consistent with the ability to safely control larger and more complex aircraft. A visual observer (VO) will accompany the PIC during every operation and will continually communicate observations to provide the PIC with adequate information to avoid any obstructions and safely operate the UA. Finally, the UAS will carry no pilot or passengers and no additional cargo beyond their video cameras. The dangers posed by traditional commercial operations are thus almost entirely negated and all operations would therefore be in conformance with the intended goals of these regulations.

2. Extent of Relief Pinpoint Services Seeks and the Reason Pinpoint Seeks Relief from 14 C.F.R. § 91.7(a).

Given the size of the Phantom UA, no airworthiness will be issued for the aircraft. Should an exemption from Section 91.7 subsection (a) be granted, no regulatory standard will exist for determining the airworthiness of the UA. Pinpoint Services will therefore ensure that the UAS are in airworthy condition through the use of regular maintenance and inspections, documentation of any maintenance performed, safety checklists and compliance with the UA operating documents prior to every flight.

3. Extent of Relief Pinpoint Services Seeks and the Reason Pinpoint Seeks Relief from 14 C.F.R. § 91.119(b).

Pinpoint Services operates cellular towers within certain metropolitan areas and seeks to increase the safety in diagnosing problems with those towers through the use of its Phantom UAS. Pinpoint Services will provide advanced notice to and comply with guidance from local ATC to ensure proper separation from any conventional, operating aircraft; will never operate at an altitude above 500 feet AGL; and will provide advanced notice to all property owners and other individuals, including personnel, within the surrounding area. Pinpoint Services will never operate the UAS within 500 feet of any person or property other than the cellular towers and those involved in its maintenance and repair unless the PIC and VO verify that 1) barriers or other structures exist to protect third-parties and property from debris in the event of an accident, 2) the owner or controller of nearby real and personal property has granted permission and the PIC determines that the UA can be operated safely, and 3) the safety to the VO and PIC has been ensured. Given the coordination with local ATC, the relative size of the Phantom UAS, the lack of flammable fuel, the separation between the UAS and third-parties and property, and the separation between the UA and normal altitudes of conventional aircraft, an equivalent level of safety will be provided to that required for conventional aircraft operating in these metropolitan areas.

4. Extent of Relief Pinpoint Services Seeks and the Reason Pinpoint Seeks Relief from 14 C.F.R. § 91.119(c).

Pinpoint Services additionally seeks to increase the safety in diagnosing problems with those of its cellular towers in rural areas through the use of its Phantom UAS. In order to ensure an equivalent level of safety as that provided by Section 91.119 subsection (c), the company will never operate its Phantom UA at an altitude above 500 feet AGL and will provide advanced

notice to all property owners and other individuals, including personnel, within the surrounding area. The UA will never be operated within 500 feet of any person or property other than the cellular tower and those involved in its maintenance and repair unless the PIC and VO verify that 1) barriers or other structures exist to protect third-parties and property from debris in the event of an accident, 2) the owner or controller of nearby real and personal property has granted permission and the PIC determines that the UA can be operated safely, and 3) the safety to the VO and PIC has been ensured. Given the additional precautions made by the PIC and VO, the relative size of the Phantom UA, the lack of flammable fuel, and the separation between the UA and normal altitudes of conventional aircraft, an equivalent level of safety will be provided to that required for conventional aircraft operating in rural areas.

5. Extent of Relief Pinpoint Services Seeks and the Reason Pinpoint Seeks Relief from 14 C.F.R. § 91.121(a).

Section 91.121 subsection (a) states that persons operating an aircraft not equipped with a radio below 18,000 feet MSL must reference the elevation of the departure airport or an appropriate altimeter setting available before departure. 91 C.F.R § 121(a)(1)(iii). As the Phantom UA do not possess onboard barometric altimeters, an exemption is requested to allow Pinpoint Services to use the UAS's GPS altitude readout to determine the altitude of the launch site and vehicle. The Phantom UAS use a radio communications telemetry data link to provide real-time altitude and GPS coordinates to the operator at each phase of the operation. This information, in combination with the PIC and VO visual line of sight, will ensure that the operation of these aircraft provide an equivalent level of safety to that provided in Section 91.121 subsection (a).

6. Extent of Relief Pinpoint Services Seeks and the Reason Pinpoint Seeks Relief from 14 C.F.R. § 91.151(a).

Section 91.151 subsection (a) describes fuel requirements for flight in Visual Flight Rules (VFR) conditions. 14 C.F.R. § 91.151(a). As the Phantom UAS have limited flight time and range, Pinpoint Services requests an exemption from the regulations described in this section. The Phantom 2 Vision+ UA has a maximum flight time of 25 minutes and will be unable to meet the regulation's 30 minute reserve requirement in daytime conditions. The Phantom 3 UA has maximum flight time of approximately 23 minutes and will similarly be unable to meet the reserve requirement. In order to maintain an equivalent level of safety, Pinpoint Services will ensure that the UA will operate no longer than 20 minutes at a time and will operate with an battery reserve level no less than 20 percent, a level sufficient to guarantee safe landing. Given that the proposed operations will all occur within a limited area, Pinpoint Services submits that these precautions will ensure the safe operation of the equipment and the safety of nearby persons and property.

7. Extent of Relief Pinpoint Services Seeks and the Reason Pinpoint Seeks Relief from 14 C.F.R. §§ 91.405(a), 91.407(a)(1), 91.409(a)(2), and 91.417(a) and (b).

These regulations require regular maintenance inspections to ensure proper aircraft safety. As these sections apply only to aircraft with airworthiness certificates, Pinpoint Services requests exemptions from these requirements. Pinpoint Services will use trained technicians to perform regular maintenance pursuant to the UA Operating Manuals. Prior to each flight, the PIC will also perform regular safety inspections, will perform any and all maintenance necessary to ensure proper safety, and will keep a complete record of any maintenance performed. These precautions, in conjunction with the size and weight of the UA and the other safeguards detailed

above, will ensure that the UAS operates in a way that achieves an equivalent level of safety to that required by the regulations.

D. The Reasons why Granting Pinpoint Service's Request Would be in the Public Interest.

The environment and height are among numerous factors that put tower climbing among the most dangerous jobs in the country. The use of UAS can significantly reduce the risk to climbers in several ways. The data gathered by UAS prior to any climb will give climbers advanced notice of the problems they may encounter during their inspection and maintenance, allowing them a greater focus on actions specifically needed to complete the job while assuring their and others' safety. This data can additionally reduce the need for climbs by determining in advance whether a climb is needed. Finally, the use of UAS can eliminate the need for conventional aircraft to perform the same type of data-gathering, and can therefore reduce the traffic of these aircraft in the NAS, thereby reducing the potential for damage to persons or property outside Pinpoint Services and its employees.

E. The Reasons why Granting the Exemption Would Not Adversely Affect Safety, or how the Exemption Would Provide a Level of Safety at Least Equal to that Provided by the Rule from Which Pinpoint Services Seeks Exemption.

Given the size, weight, type of fuel, and training that PICs will receive, Pinpoint Services submits that the proposed operations can maintain an equivalent level of safety to that provided in the relevant regulations. The Phantom UAS are significantly smaller than the traditional aircraft operated in commercial settings and therefore present a significantly reduced risk of harm to persons and property. All operations will be performed with the assistance of a VO, giving the PIC a greater awareness of the present risks and circumstances. Unlike conventional commercial aircraft, the Phantom UA will carry also no passengers or cargo and carries no flammable fuel, thereby decreasing any potential risks involved.

1. Reasons why Granting an Exemption from the Requirements of 14 C.F.R. § 61.101(e)(4) and (e)(5) and 61.113(a) and (b) Would Not Adversely Affect Safety.

Section 61.101 subsections (e)(4) and (e)(5) and Section 61.113 subsections (a) and (b) prohibit those holding recreational or private pilot licenses from commercial operations. All PICs will receive training specific to the operation of the Phantom UAS. This training, in combination with the training they received to operate larger, more traditional aircraft, will ensure that they have the requisite skills to safely operate the UAS without significant risk to persons or property. Additionally, the accompanying VO will provide a continual assessment of the operational risks and positioning of the UA. These assessments, in conjunction with the onboard GPS coordinates and line of sight awareness, will enable the PIC to adequately operate the UAS in ways significantly safer than the operation of traditional commercial aircraft.

2. Reasons why Granting an Exemption from the Requirements of 14 C.F.R. § 91.7(a) Would Not Adversely Affect Safety.

Section 91.7 subsection (a) mandates that all aircraft operating in the NAS must be in airworthy condition. 14 C.F.R. § 91.7(a). As no airworthiness certificates will be issued for the Phantom UAS, no FAA regulatory standard will exist for determining their airworthiness. Pinpoint Services will ensure that the Phantom UAS operate in airworthy conditions by performing regular maintenance and preflight inspections and by continually operating the UAS according to their operating conditions and limitations as described in their respective manuals.

3. Reasons why Granting an Exemption from the Requirements of 14 C.F.R. § 91.119(b) and (c) Would Not Adversely Affect Safety.

Section 91.119 subsections (b) and (c) detail rules for operating aircraft in airspace in congested and other than congested areas. 14 C.F.R. § 91.119(b) and (c). In congested areas, Pinpoint Services will coordinate its operations in conjunction with instructions from local ATC, will ensure that appropriate safeguards such as fences or other barriers exist to protect third-

parties and property, will never operate at altitudes above 500 feet AGL, and will never operate within 500 feet of any person or property without sufficient notice to ensure proper safety is maintained. In other than congested areas, Pinpoint Services will never operate its UAS at altitudes above 500 feet AGL, will ensure that appropriate safeguards such as fences or other barriers exist to protect third-parties and property, will announce its operations over appropriate communication channels, and will never operate within 500 feet of any person or property without sufficient notice to ensure proper safety is maintained. These precautions, along with the information provided by the accompanying VO and size and weight considerations of the UA, will ensure that safety is provided at an equivalent level of safety to that proscribed by Section 91.119 subsections (b) and (c).

4. Reasons why Granting an Exemption from the Requirements of 14 C.F.R. § 91.121(a) Would Not Adversely Affect Safety.

Section 91.121 subsection (a) requires aircraft to reference the elevation of the departure airport or an appropriate altimeter setting available before departure. 14 C.F.R. § 91.121(a). Although the Phantom UA do not possess altimeters, an equivalent level of safety will be maintained by continually monitoring the aircraft's GPS coordinates transmitted to the PIC. These coordinates, in conjunction with the VO and PIC's line of sight assessments, will ensure that Pinpoint Services operates its UAS at a level of safety equivalent to that provided by the regulation.

5. Reasons why Granting an Exemption from the Requirements of 14 C.F.R. § 91.151(a) Would Not Adversely Affect Safety.

Section 91.151 subsection (a) provides fuel requirements for operating aircraft in VFR conditions. 14 C.F.R. § 91.151(a). The Phantom UAS' battery capacity is insufficient to meet the requirements of subsection (a). In order to maintain an equivalent level of safety to that

provided by the regulation, Pinpoint Services will restrict operations to 20 minutes of active flight. The PIC will also actively monitor the UA's battery status, and immediately cease operations if the battery level approaches that needed to safely land the aircraft. These precautions, in conjunction with the restricted area of operation and size, weight, and speed of the aircraft, will ensure that the UAS are operated at safety levels equivalent to that mandated by the regulation.

6. Reasons why Granting an Exemption from the Requirements of 14 C.F.R. §§ 91.405(a), 91.407(a)(1), 91.409(a)(2), and 91.417(a) and (b) Would Not Adversely Affect Safety.

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..." As the requirements and Part 43 apply only to those aircraft operating with an airworthiness certificate, they will not apply to Pinpoint Services UAS operations. Pinpoint Services will an ensure an equivalent level of safety through regular maintenance by trained technicians in accordance with the operating documents. Prior to each flight, Pinpoint Services will inspect the UAS to determine potential problems and, if able, will correct any problems or, if unable, will cease operations. Pinpoint Services will also document every inspection and maintenance performed. These inspections and maintenance precautions will ensure that the UAS will only operate when appropriately deemed to be in airworthy conditions and therefore pose a minimal risk to surrounding persons or property.

F. A Summary That Can Be Published In The Federal Register, stating: The Rules From Which Pinpoint Services Seeks Exemption:

Pinpoint Services, Inc. seeks exemption from the requirements of 14 C.F.R Sections 61.101(e)(4) and (e)(5), 61.113(a) and (b), 91.7(a), 91.119(b) and (c), 91.121(a), 91.151(a), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (a)(2), and 91.417(a) and (b).

A Brief Description Of The Nature Of The Exemption Pinpoint Services Seeks: *This exemption will permit Pinpoint Services, Inc. to commercially operate Unmanned Aircraft Systems (UAS) for the purpose of conducting diagnosing cellular tower maintenance needs.*

G. Any Additional Information, Views, or Arguments Available to Support Pinpoint Services's Request.

This Petition is made pursuant to the FAA Modernization and Reform Act of 2012 (FMRA) Section 333, which directs the Secretary of Transportation to determine if certain UAS may operate safely in the NAS. As such, Pinpoint Services's request for exemption may be granted pursuant to the authority of FMRA Section 333 and 14 C.F.R. Part 11. FMRA Section 333 sets forth the requirements for considering whether a UAS will create a hazard to users of the NAS or the public, or otherwise pose a threat to national security; and further, provides the authority for such UAS to operate without airworthiness certification. As discussed in detail above, Pinpoint Services will operate the Phantom 2 Vision+ and Phantom 3 UAS safely in the NAS, without creating a hazard to users of the NAS, or the public, or otherwise pose a threat to national security.

1. Reasons Why The Operation of the Phantom UAS do not Present any Issues of Privacy.

Pinpoint Services will ensure that no operation it performs present any risk to or invasion of the privacy of third-parties and the public. All UA operations will be performed within areas limited to a size necessary to successfully inspect cellular communication towers. Any operations potentially interfering with the privacy rights of other individuals will be preceded by adequate notice to and the consent of any persons whose privacy may be affected.

CONCLUSION

As set forth herein, Pinpoint Services seeks an exemption pursuant to 14 C.F.R. § 11.61 and Section 333 of the FAA Modernization and Reform Act of 2012 (FMRA), which will permit safe operation of the Phantom 2 Vision+ and Phantom 3 UAS commercially, without an airworthiness certificate, for the limited purpose of conducting data collection over certain areas of the United States. By granting this Petition, the FAA Administrator will be fulfilling the Congressional mandate of the FAA Modernization and Reform Act of 2012, while also advancing the interests of the public, by allowing Pinpoint Services to safely, efficiently, and economically operate the Phantom UAS commercially within the NAS.

WHEREFORE, in accordance with the Federal Aviation Regulations and the FAA Modernization and Reform Act of 2012, Section 333, Pinpoint Services respectfully requests that the Administrator grant this Petition for an exemption from the requirements of 14 C.F.R §§ 61.101(e)(4) and (e)(5), 61.113(a) and (b), 91.7(a), 91.119(b) and (c), 91.121(a), 91.151(a), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (a)(2), and 91.417(a) and (b), and permit Pinpoint Services to operate the Phantom 2 Vision+ and Phantom 3 UAS commercially for the purpose of conducting data collection over certain areas of the United States.

Dated: May 28, 2015

Respectfully submitted,

/s/ J. August Shoemaker

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