

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

Regulatory Docket No. \_\_\_\_\_

**IN THE MATTER OF THE PETITION FOR EXEMPTION OF:  
NATALIE CONTRACTING, LLC.  
FOR AN EXEMPTION SEEKING RELIEF FROM THE REQUIREMENTS OF  
TITLE 14 OF THE CODE OF FEDERAL REGULATIONS  
SECTIONS 91.9(b), 91.203(a), 91.203(b), 45.23(b) AND 21.185  
CONCERNING OPERATION OF AN UNMANNED AIRCRAFT SYSTEM  
OVER THE STATE OF ILLINOIS AND INDIANA  
PURSUANT TO SECTION 333 OF THE  
FAA MODERNIZATION AND REFORM ACT OF 2012**

Submitted on December 22, 2014

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## **GLOSSARY OF ABBREVIATIONS**

AGL	Above Ground Level
ATC	Air Traffic Control
COA	Certificate of Authorization
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
NAS	National Airspace System
Section 333	FAA Modernization and Reform Act of 2012, Section 333
SMS	Safety Management System
UAS	Unmanned Aircraft System
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions

## **SUMMARY**

Natalie Contracting, LLC. seeks exemption from the requirements of 14 C.F.R. §§ 91.9(b),

91.203(a), 91.203(b), 45.23(b) and 21.185. This exemption will permit Natalie Contracting, LLC. to operate an Unmanned Aircraft System (“UAS”) over areas of the States of Illinois and Indiana, while keeping the documents required by the regulations at the ground control station and immediately accessible to the pilot in command. Furthermore, the exemption will relieve Natalie Contracting, LLC. from the airworthiness certificate standards and the requirement to have a certificate of airworthiness issued for its UAS. This exemption will also permit any required markings concerning the operational status of the UAS to be displayed on the fuselage of the unmanned aircraft.

## **INTRODUCTION AND INTERESTS OF THE PETITIONER**

Natalie Contracting, LLC. (hereinafter referred to as “Natalie”) is a startup contracting firm servicing the transportation and infrastructure industries as well as the motion picture industry. Natalie has recently acquired a DJI Phantom II Unmanned Aircraft System (hereinafter referred to as the “DJI Phantom II UAS”). As set forth in this Petition, Natalie seeks to operate its DJI Phantom II UAS for the special purpose of aerial videography and cinematography, jobsite pre-construction video documentation, infrastructure and railroad inspection, and post-job as-built video documentation.

## **BACKGROUND**

### **Unmanned Aircraft System: DJI Phantom II UAS**

Natalie seeks an exemption to operate a DJI Phantom II UAS, Serial No. PH645423185 V2.0, registration number<sup>1</sup> to be determined, for compensation or hire within the national airspace system (“NAS”). The DJI Phantom II UAS is comprised of an unmanned quad-rotor aircraft and a transportable ground station. The DJI Phantom II UAS has a maximum gross weight of approximately 4.4 pounds (2000 grams), while having a diagonal length of 13.7 inches (350mm). The DJI Phantom II unmanned quad-rotor is equipped with four independent electric motors turning fixed pitch rotors powered by a single Lithium Polymer battery.



**Figure 1: The DJI Phantom II UAS**

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<sup>1</sup> Natalie has not reserved a registration number, but will submit an Aircraft Registration Application upon the grant of the exemptions sought by this Petition.

## Proven Operational History of the DJI Phantom II UAS in the NAS

The DJI Phantom II UAS is a common, commercially available, model of remote multi-rotor aircraft. It is currently operating safely within the NAS pursuant to Advisory Circular 91-57, June 9, 1981. The DJI Phantom family of aircraft has been operating worldwide since 2006.

### **BASIS FOR PETITION**

Petitioner, Natalie Contracting, LLC., by and through undersigned, 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 for an exemption from the requirements of 14 C.F.R. §§ 91.9(b), 91.203(a), 91.203(b), 45.23(b), as well as the restricted category airworthiness certification standards specified in 14 C.F.R. § 21.185, including the requirement to have a certificate of airworthiness as contemplated by 14 C.F.R. Part 21.

In the alternative, and in accordance with Federal Aviation Regulation (“FAR”) Section 21.16, entitled *Special Conditions* (14 C.F.R. § 21.16), Natalie respectfully requests that the Administrator prescribe special conditions for the intended operation of the DJI Phantom II UAS that contain such safety standards as the Administrator finds necessary to establish a level of safety equivalent to that established by the restricted category airworthiness certification standards specified in 14 C.F.R. § 21.185. In the alternative, Natalie seeks an exemption from

the requirement to have a certificate of airworthiness issued for its DJI Phantom II UAS, as otherwise contemplated by 14 C.F.R. Part 21.

In accordance with 14 C.F.R. § 11.81, Natalie 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:

Natalie Contracting, LLC  
2128 Gould Ct.  
Rockdale, IL 60436-9531

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

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**B. The Specific Sections Of 14 C.F.R. From Which Natalie Seeks Exemption.**

**1. Natalie Seeks Exemption From The Requirement Of Section 91.9(b).**

Natalie seeks an exemption from **14 C.F.R. § 91.9(b)**. Section 91.9 entitled *Civil aircraft flight manual, marking, and placard requirements*, subsection (b) states the following:

(b) No person may operate a U.S.-registered civil aircraft--

(1) For which an Airplane or Rotorcraft Flight Manual is required by § 21.5 of this chapter unless there is available in the aircraft a current, approved Airplane or Rotorcraft Flight Manual or the manual provided for in § 121.141(b); and

(2) For which an Airplane or Rotorcraft Flight Manual is not required by § 21.5 of this chapter, unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.

**2. Natalie Seeks Exemption From The Requirements Of Sections 91.203(a) and 91.203(b).**

Natalie seeks an exemption from **14 C.F.R. § 91.203(a) and (b)**. Section 91.203 entitled *Civil aircraft: Certifications required*, subsections (a) and (b) state the following:

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

(1) An appropriate and current airworthiness certificate. Each U.S. airworthiness certificate used to comply with this subparagraph (except a special flight permit, a copy of the applicable operations specifications issued under § 21.197(c) of this chapter, appropriate sections of the air carrier manual required by parts 121 and 135 of this chapter containing that portion of the operations specifications issued under § 21.197(c), or an authorization under § 91.611) must have on it the registration number assigned to the aircraft under part 47 of this chapter. However, the airworthiness certificate need not have on it an assigned special identification number before 10 days after that number is first affixed to the aircraft. A revised airworthiness certificate having on it an assigned special identification number, that has been affixed to an aircraft, may only be obtained upon application to an FAA Flight Standards district office.

(2) An effective U.S. registration certificate issued to its owner or, for operation within the United States, the second copy of the Aircraft registration Application as provided for in § 47.31(c), or a registration certification issued under the laws of a foreign country.

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

**3. Natalie Seeks Exemption From The Requirements Of Section 45.23(b).**

Natalie seeks an exemption from **14 C.F.R. § 45.23(b)**. Section 45.23 entitled *Display of marks; general*, subsection (b), states the following:

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



**4. Natalie Requests Relief To Exempt The DJI Phantom II UAS From The Restricted Category Airworthiness Certification Standards Specified In 14 C.F.R. §21.185.**

In accordance with the FAA Modernization and Reform Act of 2012, Section 333, and 14 C.F.R. § 21.16 entitled *Special Conditions*, Natalie seeks to exempt the DJI Phantom II UAS from the restricted category airworthiness certification specified in **14 C.F.R. § 21.185**, or the requirement to have a certificate of airworthiness issued, as contemplated by **14 C.F.R. Part 21**. Section 21.185 entitled *Issue of airworthiness certificates for restricted category aircraft*, states the following, in part:

(a) Aircraft manufactured under a production certificate or type certificate. An applicant for the original issue of a restricted category airworthiness certificate for an aircraft type certificated in the restricted category, that was not previously type certificated in any other category, must comply with the appropriate provisions of § 21.183.

**C. The Extent Of Relief Natalie Seeks And The Reason Natalie Seeks The Relief.**

**1. Extent Of Relief Natalie Seeks And The Reason Natalie Seeks Relief From Section 91.9(b).**

Relief is requested because the DJI Phantom II UAS weighs approximately 4.4 pounds (2000 grams) at its maximum gross weight and cannot carry the approved Airplane Flight Manual onboard. Furthermore, since the DJI Phantom II UAS is unmanned, the aircrew member is located at a ground control station. As such, Natalie proposes the following conditions and limitations to its request for exemption from Section 91.9(b):

The approved Airplane Flight Manual must be kept at the ground control station, where it is immediately available for reference by the aircrew member (pilot in command) of the DJI Phantom II UAS any time the unmanned aircraft is operating.

The approved Airplane Flight Manual must be made available within 10 days to any FAA, U.S. Department of Defense, or law enforcement official upon request.

**2. The Extent Of Relief Natalie Seeks And The Reason Natalie Seeks Relief From Section 91.203(a) and (b).**

Natalie requests relief from the requirement of Section 91.203(a) (*i.e.*, that an appropriate and current airworthiness certificate and an effective U.S. registration certificate be carried within the aircraft), and further, requests relief from the requirement of Section 91.203(b) (*i.e.*, that the airworthiness certificate be displayed at the cabin or cockpit entrance so that it is legible to passengers or crew). As the DJI Phantom II UAS is unmanned, it has no cabin, cockpit, pilot station, or entrances thereto. Therefore, the aircrew member is located at a ground control station and no passengers are carried at any time. As such, Natalie proposes the following conditions and limitations to its request for exemption from Sections 91.203(a) and (b):

The documents required by Sections 91.203(a) and (b) must be kept at the ground control station, where it is immediately available to the aircrew member (pilot in command) of the DJI Phantom II UAS any time the unmanned aircraft is operating.

The documents required by 91.203(a) and (b) must be made available within 10 days to any FAA, U.S. Department of Defense, or law enforcement official upon request.

**3. The Extent Of Relief Natalie Seeks And The Reason Natalie Seeks Relief From 14 C.F.R. § 45.23(b).**

Natalie requests relief from the requirement of Section 45.23(b), if applicable, that the word “Restricted” be displayed on the DJI Phantom II UAS near each entrance to the cabin, cockpit, or pilot station. As the DJI Phantom II UAS is unmanned, it has no cabin, cockpit, pilot station, or entrances thereto. Natalie proposes that, if required, the word “Restricted” be displayed in letters two (2) inches high, horizontally on both sides of the fuselage between the outrunner arms on all sides of the DJI Phantom II UAS.

**4. The Extent Of Relief Natalie Seeks And The Reason Natalie Seeks Relief From 14 C.F.R. § 21.185.**

Natalie seeks relief from the airworthiness certificate requirements of the Federal Aviation Regulations and proposes to commercially operate the DJI Phantom II UAS, without an airworthiness certificate, for the special purpose of conducting aerial videography services over the States of Illinois and Indiana. Natalie seeks relief from the airworthiness certificate requirements of 14 C.F.R. § 21.185 to the extent that the DJI Phantom II UAS, which has not yet been type certificated by the FAA, may be operated as if it were a restricted category aircraft for a single, defined, special purpose operation (*i.e.*, aerial videography).

Pursuant to the FAA Modernization and Reform Act of 2012, Section 333 (“Section 333”), Natalie seeks relief from the airworthiness certificate requirements of the FAR because operation of the DJI Phantom II UAS will not create a hazard to users of the NAS, or the public, or otherwise pose a threat to national security.

Section 333 sets forth the requirements for considering whether a UAS will create a hazard to users of the NAS or the public or pose a threat to national security. Further, Section 333 provides the authority for such UAS to operate without airworthiness certification.

Specifically, Section 333 states the following, in part:

*(b) Assessment of Unmanned Aircraft Systems.--In making the determination under subsection (a), the Secretary shall determine, at a minimum--*

*(1) which types of unmanned aircraft systems, if any, as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard to users of the national airspace system or the public or pose a threat to national security; and*

*(2) whether a certificate of waiver, certificate of authorization, or airworthiness certification under section 44704 of title 49, United States Code, is required for the operation of unmanned aircraft systems identified under paragraph (1).*

As set forth below, numerous factors, including the proven safe operational history of the DJI Phantom II UAS in the NAS, as well as the specific parameters of Natalie's intended operation pursuant to this exemption, demonstrate that the DJI Phantom II UAS has in the past, and will continue in the future, to operate safely in the NAS without creating a hazard to other aircraft or people on the ground. Accordingly, the FAA may approve operation of the DJI Phantom II UAS, without an airworthiness certificate, by setting forth specific operating limitations to ensure a level of safety equivalent to what would be provided by airworthiness certification.

**D. The Reasons Why Granting Natalie's Request Would Be In The Public Interest; That Is, How It Would Benefit The Public As a Whole.**

Granting the present Petition will further the public interest by allowing Natalie to safely, efficiently, and economically perform aerial videography services over the States of Illinois and Indiana in support of government entities, transportation and water infrastructure entities, and the motion picture industry. Additionally, use of the DJI Phantom II UAS will decrease congestion of the NAS, reduce pollution, and provide significant benefits to the economy. Notably, the benefits of the proposed operation of the DJI Phantom II UAS will be realized without implicating any privacy issues.

**1. The Public Will Benefit From Aerial Videography**

Natalie submits this Petition to perform aerial videography throughout the States of Illinois and Indiana, in support of government entities, transportation and water infrastructure entities, and the motion picture industry. The DJI Phantom II UAS will provide safe, efficient, and economical aerial videography operations to further each of these fields, all of which are critical to the well-being of the general public.

The specific operations that Natalie will perform with the DJI Phantom II UAS

demonstrate how the requested exemption will directly benefit the above-referenced industries and the public. In the transportation and water infrastructure industry, the DJI Phantom II UAS will be used to aid in facility inspections, surveying and planning new worksites, and performing right of way analysis. The DJI Phantom II UAS can carry various cameras for day and night inspection, can be equipped with additional sensors such as sniffers and are programmable to fly specific routes regularly. The DJI Phantom II UAS can inspect larger areas, in different ways, in less time and at lower costs. In addition, the more frequent regular inspections facilitate faster problem recognition, resulting in fewer negative externalities. In the motion picture industry, the DJI Phantom II UAS will be used to gather video footage not otherwise attainable by traditional means. The advantage of unmanned systems is that they provide overviews which normally require several cameras, can enter narrow and confined spaces and produce little noise. The DJI Phantom II UAS provides a great alternative to helicopters in that they can provide images from similar altitudes, with gyro stabilized cameras and modular platforms at a fraction of the cost. This solution can dramatically increase the applicability, improve the quality and decrease the costs of aerial videography for the motion picture industry.

## **2. The Public Will Benefit From Decreased Congestion Of The NAS.**

The DJI Phantom II UAS is a battery powered UAS that serves as a safe, efficient, and economical alternative to the manned aircraft traditionally utilized to obtain aerial imagery. By reducing the amount of manned aircraft needed to perform aerial videography, an exemption allowing the use of a DJI Phantom II UAS would reduce the amount of manned aircraft in the NAS, reduce noise and air pollution, as well as increase the safety of life and property in the air and on the ground.

Furthermore, by reducing the number of manned aircraft operating in the NAS,

congestion around airports caused by arriving and departing aircraft will be reduced. The DJI Phantom II UAS does not require an airport to takeoff or land. Likewise, a reduction of manned aircraft conducting aerial survey missions would result in fewer aircraft that must be handled by air traffic control facilities during the ground, takeoff, departure, arrival, and landing phases of flight operations.

### **3. The Public Will Benefit From The Safety And Efficiency Of The DJI Phantom II UAS.**

Conducting aerial videography with the DJI Phantom II UAS, instead of manned aircraft, will greatly benefit the public by drastically reducing the levels of air and noise pollution generated during traditional aerial videography flight operations. By using battery power and electric motors, the DJI Phantom II UAS produces no air pollution, and is the most viable environmentally conscious alternative to piston or turbine powered rotorcraft. The DJI Phantom II UAS, while reducing the carbon footprint of aerial videography, also eliminates noise pollution as its battery powered electric motors are barely audible during the take-off phase, and cannot be heard when operating more than 100 feet above ground level.

By using the DJI Phantom II UAS to perform aerial videography, the substantial risk to life and property in the air and on the ground, which is usually associated with traditional manned aircraft flight operations, will be substantially reduced or completely eliminated. Aside from the lack of aircrew members located onboard the aircraft, the DJI Phantom II UAS (weighing approximately 4.4pounds (2000 grams) at its maximum gross weight with a diagonal length of 13.7 inches (350mm), with no fuel on board), has less physical potential for collateral damage to life and property on the ground, and in the air, compared to the manned aircraft that typically conduct aerial videography (weighing approximately 4,450pounds with a

rotor diameter of approximately 34 feet, and a fuel capacity of 110 gallons).

The DJI Phantom II UAS has several safety features which will minimize the potential for fly-aways and maximize the safe and efficient use of the aircraft in the NAS. The DJI Phantom II UAS Naza-M-V2 controller provides Intelligent Orientation control (Home Lock and Course Lock features). The Home Lock feature allows for a safe return should the operator (i.e. Pilot in Command) get disoriented as to the direction the aircraft is moving. Once activated on the remote control, the operator can simply pull back on the right control stick and the DJI Phantom II UAS will return to the remote control regardless of the aircraft's location from the remote control. The Course Lock feature will allow the operator to maintain a specific course regardless of aircraft orientation. The Naza-M-V2 controller also provides for fail safe and lost-link safeguards. The fail safe feature means that when the controller link is lost all outputs of the command sticks from the controller will go the center point. An example would be if the aircraft is in a climbing right turn and the communication link is lost, the aircraft would go into a level hover and not continue with the last assigned controller instructions. After 3 seconds of the lost-link scenario, the aircraft will climb or descent (based on altitude the lost-link occurs) to a pre-assigned altitude and return to the point of departure and land itself. A more detailed description of each system is attached as Exhibit A.

#### **4. Performing Aerial Videography Operations With The DJI Phantom II UAS Will Benefit The Economy.**

In addition to being safe and efficient, the DJI Phantom II UAS is also an economical alternative to using manned aircraft to conduct aerial videography. As such, operation of the DJI Phantom II UAS will allow United States based companies, like Natalie, to remain

competitive and contribute to growth of the U.S. economy. Specifically, with the rising cost of aviation fuel and the Environmental Protection Agency (“EPA”) regulatory actions phasing out leaded fuels, U.S. owned and operated companies must adopt new and alternative technology in order to remain competitive.

Operating the battery powered DJI Phantom II UAS is one such technology that not only allows companies greater operational flexibility compared to manned aircraft, but provides such flexibility without the high operational cost of a traditional manned aircraft.

By operating the DJI Phantom II UAS, companies such as Natalie can remain competitive and profitable, and therefore provide greater job stability to employees and contractors, which will ultimately contribute to growth of the U.S. economy. Improved financial performance of U.S. companies, through commercial use of the DJI Phantom II UAS, provides a stable workforce that increases consumer spending; improves local, state, and federal tax revenues; and allows companies to invest in research and development in order to remain competitive both in the United States and abroad.

**5. There Are No Privacy Issues.**

Like the manned aerial videography flight operations that have been conducted for decades, the proposed operation of the DJI Phantom II UAS will not implicate any privacy issues. Specifically, the DJI Phantom II UAS will be operated over the public right-of-way or above private property with the property owner/controllers consent, and in accordance with all Federal Aviation Regulations.

**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 Natalie Seeks Exemption.**

**1. Reasons Why An Exemption From The Requirements Of Section 91.9(b) Would Not Adversely Affect Safety.**



This exemption would maintain the level of safety established by Section 91.9(b) because Natalie will keep the approved Airplane Flight Manual at the ground control station where the pilot in command flying the DJI Phantom II UAS will have immediate access to the document.

Previous exemptions granted by the FAA concerning Section 91.9(b) establish that safety is not adversely affected when the approved Aircraft Flight Manual is kept at the ground control station of a UAS, where it can be immediately accessed by the pilot in command. Section 91.9(b) “requires aircraft to carry the flight manual so the pilot would have ready access to the aircraft limitations while in flight.” Exemption No. 8607. However, the FAA has also found that UAS will always be operated without any passengers or crew onboard, and that “requiring these special-use aircraft [UAS] to carry superfluous paper documents may present a safety hazard to the integrity of the [UAS].” *Id.*

The FAA has previously granted exemptions in circumstances similar, in all material respects, to those presented herein (*e.g.*, Exemption Nos. 8607, 8737, 8738, 9299, 9430, 9554, 9564, 9565, 10167, 10602, 10673, 10835, 10869, 10968).

**2. Reasons Why An Exemption From The Requirements Of Section 91.203(a) And (b) Would Not Adversely Affect Safety.**

This exemption would maintain the level of safety established by Sections 91.203(a) and (b) because Natalie will keep the required documents at the ground control station where the pilot in command flying the DJI Phantom II UAS will have immediate access.

Previous exemptions granted by the FAA concerning Sections 91.203(a) and (b) establish that safety is not adversely affected when the Airworthiness Certificate and U.S.

registration certificate are kept at the ground control station of the UAS, where it can be immediately accessed by the pilot in command. Specifically, the FAA has held that the intent of Sections

91.203(a) and (b) is better served by having the required documents in the control of the UAS operator (pilot in command), reasoning as follows:

The original intent of the subject regulation was to display the airworthiness and registration documents so they would be easily available to FAA inspectors and passengers for inspection and verification of the airworthiness and registration of the aircraft . . . In this case, the aircraft will always be operated without any passengers or crew.

The missions for which UASs are intended will prevent the aircraft from being available for the inspections normally prescribed for civil aircraft. Further, it will be operated on strictly confined missions from a known departure and arrival point, under the constant control of a pilot-in-command. We also find that requiring these special-use aircraft to carry superfluous paper documents may present a safety hazard to the integrity of the [UAS].

FAA operating limitations and special arrangements with Air Traffic Control (ATC) for surveillance of [UAS] flights adequately compensate for the requirements for carrying airworthiness and registration documents. We find the intent of the regulation is better served by having the required documents in the control of the aircraft operator and available for inspection under the special conditions prescribed in this exemption.

The FAA has previously granted exemptions in circumstances similar, in all material respects, to those presented herein (*e.g.*, Exemption Nos. 8607, 8737, 8738, 9299, 9564, 9565, 10167, 10602, 10673, 10835, 10869, 10968).

**3. Reasons Why An Exemption From The Requirements Of 14 C.F.R. § 45.23(b) Would Not Adversely Affect Safety.**

This exemption would maintain the level of safety established by Section 45.23(b) because if required, displaying the word “Restricted” with two (2) inch high letters, horizontally between outrunners on all four sides of the DJI Phantom II UAS, will inform all

parties of the unmanned aircraft's overall operating status.

Significantly, Natalie will display the word "Restricted" in two (2) inch high letters in compliance with size requirement of Section 45.23(b) (*i.e.*, "letters not less than 2 inches nor more than 6 inches high"). By placing the letters horizontally between outrunners on all four sides of the DJI Phantom II UAS, will ensure that the word "Restricted" is the in most visible location, so that all parties will be informed of the unmanned aircraft's overall operating status.

The FAA has previously granted exemptions in circumstances similar, in all material respects, to those presented herein (*e.g.*, Exemption Nos. 8737, 10167, 10167A, 10700, 10810).

**4. Reasons Why An Exemption From The Requirements Of 14 C.F.R. § 21.185, Including The Requirement To Have A Certificate Of Airworthiness, Would Not Adversely Affect Safety.**

In seeking this exemption, Natalie submits that the DJI Phantom II UAS can operate safely in the NAS above the States of Illinois and Indiana without creating a hazard to other aircraft or people on the ground. Accordingly, the FAA may approve its use without an airworthiness certificate as demonstrated by: (i) the safe operational history and current use of the DJI Phantom II UAS in the NAS; (ii) the characteristics of the DJI Phantom II UAS; (iii) the limited area of Natalie's intended operation; (iv) the Safety Management System Natalie has developed for DJI Phantom II UAS operations and maintenance; (v) the commercial pilot requirement; (vi) the specific operating limitations; and (vii) any other conditions that the Administrator may prescribe.

**i. The DJI Phantom II UAS Has A Proven History Of Operation In The NAS Pursuant To Advisory Circular 91-57, June 9, 1981.**

The DJI Phantom II UAS is currently operating safely in the NAS pursuant to Advisory Circular 91-57, *Model Aircraft Operating Standards*. The DJI Phantom II UAS has been operated worldwide since 2006.

**ii. The Specifications Of The DJI Phantom II UAS Demonstrate Its Safe Characteristics.**

The DJI Phantom II UAS does not create a hazard to users of the NAS or the public, or otherwise pose a threat to national security considering its size, weight, speed, or operational capability. The specifications of the DJI Phantom II UAS are as follows:

Unmanned Aircraft System	The DJI Phantom II is an Unmanned Aircraft System that is comprised of an unmanned quad-rotor aircraft and a transportable ground station. Model Number P330Z
Serial No.	PH45423185 V2.0
Unmanned Aircraft Dimensions	Diagonal Length: 13.7 inches (350mm)
Engine (Propulsive Unit)	<u>Engine (Propulsive Unit)</u> (4) Multistar P/N : 2212 (Electric) FAA Engine Type Cert: None Propulsive Unit Type: (1) 11.1V 5200mAh, Lithium polymer battery powered, brushless electric motors

	<p><u>Motor, Controller Sub-Assembly:</u>  Manufacturer: DJI Innovations  Model: Naza-M  Type: Motor Controller  3.15W (<a href="#">0.25A@12.6V</a>) Maximum  27 grams Wt.</p> <p><u>Motor, Battery:</u>  Manufacturer: DJI Innovations  Type: 3S Lithium Polymer  5200 milliamp hour  11.1V (nominal)</p>
Fuel	<p>Not Applicable.  NOTE: The DJI Phantom II UAS is powered by a Lithium Polymer rechargeable battery, DJI, Inc. P/N 733496-5200mAh-11.1V.</p>
Engine (Propulsive Unit) Limits	<p>Maximum Power Output: 130 Watts  Maximum RPM: 920Kv (rpm/v)</p>
Propeller and Propeller Limits	<p>(4) DJI Innovations  FAA Propeller Type Certificate: None  Propeller Type: 2-blade, ABS plastic, fixed pitch  <u>Propeller Sub-Assembly:</u>  Manufacturer: DJI Innovations  Model: 9450 10x4.5mm  Diameter (Nominal): 10 in.</p>
Battery Command & Control	<p>DJI Innovations battery powers the motor, and internal battery powers the command and control ground station (remote).</p>
Airspeed Limits	<p>Vne (Never Exceed Speed) 29 knot (15 m/s)  Vno (Maximum Structural Cruising Speed) Not Applicable  Va (Maneuvering Speed) Not Applicable  Landing Speed: Not Applicable</p>
Mean Aerodynamic Chord (MAC)	<p>Not Applicable</p>

Leveling Means	Not Applicable.
Maximum Weights	Ramp 4.4 lbs (2000 grams) Takeoff 4.4 lbs (2000 grams) Landing 4.4 lbs (2000 grams)
Empty Weight	2.2 lbs. (1000 grams)  NOTE: Empty Weight Includes weight of battery and Excludes payload modules.
Frequencies	902-928 MHz (ISM Band) 2.4 GHz (ISM Band)  NOTE: FCC license is not required to utilize the above frequencies; uplink and downlink are on the 900Mhz band. If video is utilized, uplink, downlink, and video are all on 2.4 Ghz.
Computer Software	Ground Station software, iOS
Minimum Crew	(1) The DJI Phantom II UAS can be operated by a single operator.
Number of Seats	(0) Not Applicable.
Fuel Capacity	Not Applicable.
Oil Capacity	Not Applicable.
Max. Operating Altitude	393 ft. AGL (120 M)
Control Surface Movements	Not Applicable

Nominal Endurance	25 minutes 14° - 122° F (-20° - 50° C)
Ambient Outside Air Temperature (OAT)	Maximum OAT: 122° F (50° C) Minimum OAT At Altitude: 14° F (-10° C)
Wind Limitation	Not Applicable
Maintenance	This DJI Phantom II UAS must be maintained in accordance with the DJI Phantom II Maintenance Operation Manual, or later FAA accepted revision.

**iii. Flight Operations Pursuant To The Exemption Sought Would Be Limited To Areas Over The States Of Illinois and Indiana That Are Not In The Proximity Of Airports Or Over Populated Areas.**

Natalie proposes to only conduct aerial videography flight operations over areas of the States of Illinois and Indiana that are not near populated areas, airports, helipads, or state roads. Specifically, Natalie’s proposed area of flight operations over the States of Illinois and Indiana includes areas that are:

1. Not within five (5) miles of any airport or helipad, without the consent of the affected air traffic control facility. Continuous two-way radio communication will be established and maintained at all times during flights in this area;
2. Not below one hundred fifty (150) feet over of state roads having more than two lanes; and
3. Not below seventy-five (75) feet over state roads having two lanes or less.

Since this platform is capable of hovering, slewing laterally, and ascending/descending over a point, we are considering the DJI Phantom II UAS a “helicopter” for the purposes of 91.119(d). Furthermore, all flight operations will be conducted in accordance with 14

C.F.R. § 91.119. *Minimum safe altitudes: General.*

In summary, Natalie seeks to operate its DJI Phantom II UAS over areas of Illinois and Indiana, while maintaining safe distances from any populated areas, airports, helipads, and roadways.

**iv. Operation Of The DJI Phantom II UAS Will Be Conducted Pursuant**

**To A Safety Management System.**

A Safety Management System (“SMS”) will control Natalie’s operation of the DJI Phantom II UAS and will significantly contribute to maintaining the level of safety contemplated by the airworthiness certificate requirements from which Natalie now seeks relief.

Pursuant to the SMS and 14 C.F.R. § 43.13, entitled *Performance Rules (general)*, each person performing maintenance, alteration, or preventive maintenance on the DJI Phantom II UAS, motor, propeller, or appliance shall use the methods, techniques, and practices prescribed in the current manufacturer's maintenance manual or Instructions for Continued Airworthiness prepared by its manufacturer, or other methods, techniques, and practices acceptable to the Administrator. Each person shall use the tools, equipment, and test apparatus necessary to assure completion of the work in accordance with accepted industry practices.



**v. Flight Operations Of The DJI Phantom II UAS Are Limited To The Line Of Sight Of A Commercial Certificated Pilot in Command With A Safety Observer.**

Natalie will only utilize Commercial Pilots with a valid First or Second Class Airman Medical certificate to act as pilot in command of the DJI Phantom II UAS. Additionally, all pilots will be assisted by a safety observer. The pilot in command and safety observer must meet the requirements as set forth by the SMS and Standard Operating Procedures adopted by Natalie for flight operations of the DJI Phantom II UAS. A copy of the Standard Operating Procedures, which is proprietary information, is attached hereto as Exhibit B, and is to be held in a separate file pursuant to 14 C.F.R. § 11.35(b).<sup>4</sup>

**vi. Flights Will Be Conducted Pursuant To Specific Operating Limitations.**

In seeking this exemption, Natalie proposes to commercially operate the DJI Phantom II UAS without satisfying the restricted category airworthiness certification process specified in 14 C.F.R. § 21.185, or otherwise having a certificate of airworthiness issued by the FAA, as contemplated by 14 C.F.R. Part 21. Natalie proposes to operate the DJI Phantom II UAS, for the special purpose of conducting aerial videography over the States of Illinois and Indiana, pursuant to the following specific operating limitations:

1. Flight operations are permitted only over the States of Illinois and Indiana.
2. The DJI Phantom II UAS will be operated at or below 400 ft. above ground level (AGL), except as necessary to comply with the requirements of 14 C.F.R. § 91.119.
3. The DJI Phantom II UAS shall be operated within one mile, and within line of

sight, of the pilot in command and safety observer.

4. The DJI Phantom II UAS shall be operated pursuant to Day Visual Flight Rules

(VFR) in visual meteorological conditions (VMC). The DJI Phantom II UAS shall be operated only during daylight hours (*i.e.* between the end of morning civil twilight

and the beginning of evening civil twilight, as published in the American Air

Almanac, converted to local time).

5. The duration of each flight shall not exceed 25 minutes or upon reaching 25% battery

power, whichever is less.

6. The DJI Phantom II UAS shall operate from on-site takeoff/landing locations directly next to the pilot in command and co-located safety observer. If the operation is from a watercraft, the pilot in command and safety observer shall remain co-located on the same watercraft.

7. Operations shall be conducted by commercially certificated airmen who have completed training, checking, currency, and recency of experience requirements as approved by the FAA Administrator.

8. Operation of the DJI Phantom II UAS with any inoperative instruments or equipment shall be prohibited.

9. The DJI Phantom II UAS shall be maintained in accordance with the Manufacturer's Maintenance Manual.

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<sup>4</sup> Exhibits to this Petition are proprietary information, and in accordance with 14 C.F.R. 11.35(b), are not to be included in the Federal Docket Management System (FDMS).

10. The DJI Phantom II UAS shall be operated pursuant to 14 C.F.R. Part 91, operating requirements.
11. For the proposed flight operation, only one DJI Phantom II UAS shall be airborne at any given time.
12. Prior to flight operations, Natalie shall coordinate and establish two way communications with the nearest Air Traffic Control facility.
13. For any flight operations over U.S. Government or state managed lands, Natalie shall coordinate with the appropriate authority and ensure that the property owners have at least twelve (12) hours of advance notice prior to the proposed flight operations. Coordination shall include anticipated periods of operation, purpose of the flights, and contact information for the operator should questions or issues arise.

**vii. Any Other Conditions The FAA May Prescribe For Safe Operation.**

In accordance with Section 333 of the FAA Modernization and Reform Act of 2012 and

14 C.F.R. § 21.16 entitled *Special Conditions*, Natalie requests that the FAA prescribe special conditions for the intended operation of the DJI Phantom II UAS, which contain such safety standards that the Administrator finds necessary to establish a level of safety equivalent to that established by Section 21.185, and which will permit safe operation of the DJI Phantom II UAS for the special purpose of conducting aerial videography over the State of Ohio. 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 in

accordance with any requirements that must be established for the safe operation of the aircraft systems in the NAS.

Likewise, the Administrator may prescribe special conditions pursuant to 14 C.F.R. § 21.16, for operation of the DJI Phantom II UAS, since the airworthiness regulations of 14 C.F.R. Part 21 do not contain adequate or appropriate safety standards, due to the novel or unusual design features of the aircraft. Section 21.16, entitled *Special Conditions*, states the following:

If the FAA finds that the airworthiness regulations of this subchapter do not contain adequate or appropriate safety standards for an aircraft, aircraft engine, or propeller because of a novel or unusual design feature of the aircraft, aircraft engine or propeller, he prescribes special conditions and amendments thereto for the product. The special conditions are issued in accordance with Part 11 of this chapter and contain such safety standards for the aircraft, aircraft engine or propeller as the FAA finds necessary to establish a level of safety equivalent to that established in the regulations.

*See* 14 C.F.R. § 21.16

Therefore, in accordance with Section 333 and 14 C.F.R. § 21.16, the FAA may prescribe special conditions for Natalie's intended operation of the DJI Phantom II UAS, which contain such safety standards that the Administrator finds necessary to establish a level of safety equivalent to that established by Section 21.185, and which will permit safe operation of the DJI Phantom II UAS for the special purpose of conducting aerial videography over the States of Illinois and Indiana.

**F. A Summary That Can Be Published In The *Federal Register*,**

**stating: The Rules From Which Natalie Seeks Exemption:**

*Natalie Contracting, LLC. seeks exemption from the requirements of 14 C.F.R. §§ 91.9(b), 91.203(a), 91.203(b), 45.23(b) and 21.185.*

**A Brief Description Of The Nature Of The Exemption Natalie Seeks:**

*This exemption will permit Natalie Contracting, LLC. to operate an Unmanned Aircraft*

*System over certain rural areas of the State of Illinois, while keeping the documents required by the regulations at the ground control station and immediately accessible to the pilot in command. Furthermore, the exemption will relieve Natalie Contracting, LLC. from the airworthiness certificate standards and the requirement to have a certificate of airworthiness for its Unmanned Aircraft System. This exemption will also permit any required markings concerning the operational status of the UAS to be displayed on the fuselage of the unmanned aircraft.*

**G. Any Additional Information, Views, Or Arguments Available To Support Natalie's Request.**

This Petition is made pursuant to the FAA Modernization and Reform Act of 2012, Section 333, which directs the Secretary of Transportation to determine if certain UAS may operate safely in the NAS. As such, Natalie's request for exemption may be granted pursuant to the authority of Section 333 and 14 C.F.R. Part 11, as set forth above.

Sec. 333 sets forth the requirements for considering whether a UAS will create a hazard to users of the NAS or the public or pose a threat to national security; and further, provides the authority for such UAS to operate without airworthiness certification. Section 333 states the following:

*(a) In General.--Notwithstanding any other requirement of this subtitle, and not later than 180 days after the date of enactment of this Act, the Secretary of Transportation shall determine if certain unmanned aircraft systems may operate safely in the national airspace system before completion of the plan and rulemaking required by section 332 of this Act or the guidance required by section 334 of this Act.*

*(b) Assessment of Unmanned Aircraft Systems.--In making the determination under subsection (a), the Secretary shall determine, at a minimum--*

*(1) which types of unmanned aircraft systems, if any, as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard to users of the national airspace system or the public or pose a threat to national security; and*

*(2) whether a certificate of waiver, certificate of authorization, or airworthiness certification under section 44704 of title 49, United States Code, is required for the operation of unmanned aircraft systems identified under paragraph (1).*

*(c) Requirements for Safe Operation.--If the Secretary determines under this section that certain unmanned aircraft systems may operate safely in the national airspace system, the Secretary shall establish requirements for the safe operation of such aircraft systems in the national airspace system.*

As discussed in detail above, the DJI Phantom II UAS has in the past, and will continue in the future, to operate safely in the NAS without creating a hazard to users of the NAS, or the public, or otherwise pose a threat to national security.

### **CONCLUSION**

As set forth above, Natalie seeks an exemption pursuant to 14 C.F.R. § 11.61 and Section 333 of the FAA Modernization and Reform Act of 2012, which will permit safe operation of the DJI Phantom II UAS commercially, without an airworthiness certificate, for the special purpose of conducting aerial videography over areas in the States of Illinois and Indiana. 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 Natalie to safely, efficiently, and economically operate the DJI Phantom II UAS commercially within the NAS.

**WHEREFORE**, in accordance with the Federal Aviation Regulations and the FAA Modernization and Reform Act of 2012, Section 333, Natalie respectfully requests that the Administrator grant this Petition for an exemption from the requirements of 14 C.F.R. §§ 91.9(b), 91.203(a), 91.203(b), 45.23(b), as well as the restricted category airworthiness certification standards specified in 14 C.F.R. § 21.185, including the requirement to have a certificate of airworthiness issued for the DJI Phantom II UAS, as contemplated by 14 C.F.R. Part 21.

Dated:  
December 22, 2014

Respectfully submitted,

**Natalie Contracting, LLC.**

*/s/ Ryan E. Hill*

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cc: Timothy Harris, DPA FSDO