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

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

September 17, 2015

Exemption No. 12905
Regulatory Docket No. FAA−2015−2695

Mr. Thomas E. Cmejla
Drone Skyworks, LLC
President
Rockbottom Road
Stow, MA 01775

Dear Mr. Cmejla:

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 June 4, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Drone Skyworks, LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial filming and photography for: real estate, infrastructure inspections, construction, architecture, scientific research, environmental assessment, and land surveying and mapping.

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

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

Airworthiness Certification

The UAS proposed by the petitioner is a DJI Inspire 1.

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

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

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

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

Our Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, Drone Skyworks, LLC is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to

[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.

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, Drone Skyworks, LLC is hereafter referred to as the operator.

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

1. Operations authorized by this grant of exemption are limited to the DJI Inspire 1 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 September 30, 2017, unless sooner superseded or rescinded.

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

Enclosures

June 4, 2015

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

Re: Exemption Request § 333 of the FAA Reform Act of the Federal Aviation Regulations from 14 CFR § 21; 61.113 (a) & (b); 61.133 (a); 91.7 (a); 91.9 (b); 91.109 (a); 91.119 (c); 91.121; 91.151 (a); 91.203; 91.405 (a); 91.407 (a) (1); 91.409 (a) (2); 91.417 (a) & (b).

Dear Sir or Madam,

Pursuant to § 333 of the FAA Modernization and Reform Act of 2012 (the Reform Act) and 14 C.F.R. Part 11, Drone Skyworks, LLC, operator of Small Unmanned Aircraft Systems (sUAS) equipped to conduct aerial filming and photographing to include: commercial and residential real estate, infrastructure inspections, construction, architecture, scientific research, environmental assessment, land surveying and mapping and other applicable areas for pre-planned, controlled areas, hereby applies for an exemption from the listed Federal Aviation Regulations (FARs) to allow commercial operation of its sUAS, so long as such operations are conducted within and under the conditions outlined herein or as may be established by the Federal Aviation Administration (FAA) as required by § 333. Drone Skyworks, LLC operation of its sUAS for commercial purposes awaits a review and the anticipated granting of this petition by the FAA before conducting any operation for its clients to fully comply with all federal aviation regulations pertaining to sUAS.

As described more fully below, the requested exemption would permit the operation of small, unmanned and multi-rotor aircraft under controlled conditions in airspace that is 1) contained 2) predetermined 3) has on-site safety personnel controlling access, and 4) would provide increased safety and enhancements to clients' business operations.

I am prepared to modify or amend any part of this request to satisfy the need for an equivalent level of safety. I look forward to working with your office. Please contact me at any time if you require additional information or clarification.

The name and address of the applicant is:

Drone Skyworks, LLC
Thomas E. Cmejla
President
Phone: 978-729-9467
Email: tcmejla@gmail.com
Address: 3 Rockbottom Road, Stow, MA, 01775

PUBLISHABLE SUMMARY

The following summary is provided for publication in the Federal Register, should it be determined that publication is needed.

Drone Skyworks, LLC seeks an exemption pursuant to 14 C.F.R. § 11.61 and Section 333 of the FAA Modernization and Reform Act of 2012 from the requirements of 14 CFR § 21; 61.113 (a) & (b); 61.133 (a); 91.7 (a); 91.9 (b); 91.109 (a); 91.119 (c); 91.121; 91.151 (a); 91.203; 91.405 (a); 91.407 (a) (1); 91.409 (a) (2); and 91.417 (a) & (b). This exemption request will permit Drone Skyworks, LLC to operate its sUAS commercially for the purpose of aerial filming and photographing to include: commercial and residential real estate, infrastructure inspections, construction, architecture, scientific research, environmental assessment, land surveying and mapping. Drone Skyworks, LLC will provide a service that is beneficial to industries and organizations that are already using, and/or seeking to use, sUAS's for these purposes with a legal and safe option. This will benefit the public with the controlled operation of sUASs and increase their integration into the NAS.

The requested exemption should be granted because the proposed operation of the DJI Inspire 1, a small UAS (sUAS) weighing 6 lbs. 7.52 oz., inclusive of battery and payload, conducted in the strict conditions outlined below, will provide an equivalent or better level of safety, as Congress intended, while still allowing commercial operations. The lightweight aircraft covered by the exemption is far safer than conventional operations conducted with helicopters and fixed-wing aircraft operating in close proximity to the ground and people. The seven factors Congress directed the FAA to consider when approving Section 333 exemption petitions - size, weight, speed, operational capability, proximity to airports, proximity to populated areas, and operation within visual line of sight - each support the request. In particular, the aircraft is small, and will operate at slow speeds, close to the ground, far from airports and in a low risk, low and controlled population environment.

Name and address of petitioner:

Drone Skyworks, LLC
Thomas E. Cmejla
3 Rockbottom Road
Stow, MA 01775

BACKGROUND OF PETITIONER

Drone Skyworks, LLC is a limited liability company owned and operated by Thomas E. Cmejla. Mr. Cmejla is currently in active pursuit of his Private Pilot Certificate and the required medical certificate.

Beginning in the late 1990s, Mr. Cmejla has devoted a significant portion of his professional career to designing, inventing and deploying new and innovative, web-based technologies and devices that have changed the ways in which customers and end users access information and make decisions. In some cases, the very nature of the information available to them changed altogether. The integration of sUASs into the National Airspace System (NAS) has the promise and potential to be equally transformative in the ways in which the public, educational and research institutions, businesses and non-profits pursues their interests and goals.

Drone Skyworks, LLC will conduct its business using the DJI Inspire 1 sUAS. The Inspire 1 is a vertical takeoff and landing sUAS with a maximum gross weight of less than 55 pounds and a maximum speed of less than 50 mph. The Inspire 1 is driven by lithium polymer batteries and powered by electric motors.

The aircraft registration application and all required supporting documentation for this sUAS has been forwarded to the FAA Aircraft Registration Branch, AFS-750, P.O. Box 25504, Oklahoma City, OK 73125-0504.

PUBLIC INTEREST AND HOW THE PUBLIC WILL BENEFIT

This exemption request will permit Drone Skyworks, LLC to operate its sUAS commercially for the purpose of aerial filming and photographing to include: commercial and residential real estate, infrastructure inspections, construction, architecture, scientific research, environmental assessment, land surveying and mapping and other applicable areas. Drone Skyworks, LLC will provide a service that is beneficial to industries and organizations that are already using, and seeking to use, sUASs for these purposes with a legal and safe option. This will benefit the public with the controlled operation of sUASs and increase integration into the NAS.

Granting the present petition will further the public interest by allowing Drone Skyworks, LLC to perform safely, efficiently, and economically, aerial video and photography of construction sites, real estate, and landscape over certain areas of the United States.
Additionally, use of the DJI Inspire 1 sUAS will decrease congestion of the NAS, reduce pollution, and provide significant benefits to the economy.

The integration of sUASs into the NAS will not only replace traditionally more expensive options or approaches, it will enable work to be done and decisions to be made in ways that were simply impossible to do previously. The commercial deployment of small unmanned

aircraft systems offers the public a new, highly efficient and relatively inexpensive platform for collecting, analyzing and utilizing data and photographic/video imagery.

In deploying its sUAS, Drone Skyworks, LLC has developed specific performance standards, operating requirements, protocols and work processes that are aligned with the FAA's continuing mission, and result in safe operating practices that are consistently applied and continuously improved. For its part, Drone Skyworks, LLC recognizes the important role it plays in educating the public and building awareness of both the promise and precautions that accompany the commercial deployment of this new and exciting platform.

The sUAS utilized by Drone Skyworks, LLC is battery-powered and serves as a safe, efficient and economical alternative to the manned aircraft traditionally utilized to obtain aerial imagery. A grant of exemption would allow Drone Skyworks, LLC to contribute to the reduction of manned aircraft needed to perform the aerial acquisition of data, video and photographic content and subsequently reduce the volume of manned aircraft in the NAS.

Conducting aerial acquisitions with the DJI Inspire 1 sUAS, instead of manned aircraft, will greatly benefit the public by drastically reducing the levels of air and noise pollution generated during traditional aerial video and still photography flight operations. By using battery power and electric motors, the DJI Inspire 1 sUAS produces no air pollution, and is the most viable environmentally conscious alternative to the cabin class, six cylinder internal combustion engine aircraft that are typically utilized for aerial video and photography, while burning approximately 20-30 gallons per hour of leaded aviation fuel. The DJI Inspire 1 sUAS, while reducing the carbon footprint of aerial acquisitions, also sharply reduces noise pollution, as the sUAS is propelled by battery powered electric motors, rather than an internal combustion engine.

By using the DJI Inspire 1 sUAS to perform aerial acquisitions, 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. The DJI Inspire 1 sUAS (weighing approximately 6 pounds 7.5 ounces at its maximum gross weight with a length of 17.3 inches and width of 17.7 inches, and 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 similar operations (weighing approximately 6,000 pounds with a wingspan of approximately 42 feet, a length of 34 feet, and a fuel capacity of 180 gallons).

Previously, such services as high-resolution digital aerial real estate photography, surveying and inspections were limited and affordable to a relatively small group of agencies, companies and organizations with significant operating capital. The granting of this exemption will enable Drone Skyworks, LLC to change this by deploying its sUAS in ways that make aerial photography and other sUAS services accessible and affordable to a significantly larger portion of individuals, organizations and businesses. The many new forms of aerial content would have immediate and direct benefits to service providers, business owners and consumers alike.

PUBLIC SAFETY

With safety as its primary operational requirement, Drone Skyworks, LLC will plan, conduct and manage its flight operations within very specific and well-defined operating limitations and standards detailed in its flight operations protocols (see Attachment G). These protocols also clearly define the roles and responsibilities of the pilot in charge (PIC), visual observer (VO), sensor operator (SO) and the client representative working with the Drone Skyworks team.

In seeking this exemption, Drone Skyworks, LLC submits that the DJI Inspire 1 sUAS can operate safely in the NAS pursuant to FMRA Section 333, as demonstrated by the characteristics of the DJI Inspire 1 sUAS, the pilot certification requirements, and the specific operating limitations. The specifications of the DJI Inspire 1 sUAS (see Attachments A and B) demonstrate its safe characteristics. The DJI Inspire 1 sUAS 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, and operational capability. Many of the functional capabilities and features of the DJI Inspire 1 sUAS enable it to be operated in a highly controlled, precise and safe manner.

The DJI Inspire 1 sUAS autonomous flight and navigation modes enable it to remain within a defined operational area. Also, the DJI Inspire 1 sUAS may be operated in both manual and fully autonomous flight modes. A complete description of the flight and navigational modes of the DJI Inspire 1 sUAS is provided on pages 12-16 and 45-50 of the DJI Inspire 1 User Manual (see Attachment B).

The DJI Inspire 1 sUAS includes automatic return-to-home-point or hover functionality in the event of loss of the control link or navigation. When the control ink is lost, the DJI Inspire 1 sUAS will remain stationary, in flight, for 3 seconds or more. If, after 3 seconds, the DJI Inspire 1 sUAS does not reacquire control link data from the ground control station/remote controller, the sUAS will assume that the control link is lost and will return to the home position (i.e., failsafe mode) via GPS, and will descend to the takeoff position and shutdown. A complete description of the failsafe functions of the DJI Inspire 1 is provided on pages 13-15 of the DJI Inspire 1 User Manual (see Attachment B).

Whether helping to protect the public, inspecting infrastructure, conducting site and land surveys or acquiring aerial imagery and video, Drone Skyworks LLC sUAS will be providing its customers with more accurate and timely information. The real-time situational awareness and improved decision-making this achieves will enable Drone Skyworks' customers and clients to communicate with and more safely serve and support their respective constituents.

Strict adherence to specific flight operations protocols (see Attachment G and H), the use of the DJI Inspire 1 sUAS configured with significant safety functionality, the acquisition of an accurate understanding of both the flight operations area and its adjacencies using Drone Skyworks' Site Safety and Planning Template (see Attachment L), and the use of Drone

Skyworks' On-Site Client Safety Briefing (see Attachment M) will provide a level of safety and oversight that is in complete alignment with the FAA's mission to "provide the safest, most efficient aerospace system in the world." [FAA online document, Public Guidance for Petitions for Exemption Filed under Section 333. Rev. 9/25/2014]

PRIVACY

All flights will occur over private or controlled-access property with the property owner's or controlling authority's prior consent and knowledge. Aerial photography and video capture will be of people who have provided their written consent (see Attachment N) to being photographed or have been authorized to be in the area where flight operations are taking place. Establishing and maintaining tight controls over access to the flight operations area will minimize privacy issues.

Similar to the manned aerial acquisition flight operations that have been conducted for decades, Drone Skyworks, LLC's proposed operation of the DJI Inspire 1 sUAS will not implicate any privacy issues. Specifically, the DJI Inspire 1 sUAS will be operated under detailed operational protocols designed to ensure client or property owner involvement as well as local law enforcement notification. Flight operations will be conducted in accordance with Federal Aviation Regulations, including the minimum altitude requirements of 14 C.F.R. § 91.119.

Drone Skyworks, LLC has developed a proprietary work-site planning template (see Attachment L) that will be completed and reviewed with the client's onsite representative prior to the commencement of any operation or project. This detailed diagram of the operational environment will provide the PIC), VO(s), SO, and any other designated support and security personnel with a full understanding of the site or subject's structural characteristics, layout, topography, adjacencies, and all significant and relevant natural and man made features within the operational area. The template will also be used by Drone Skyworks, LLC personnel to gain a clear picture of any area or condition immediately adjacent to or near the operational area. The will enable Drone Skyworks, LLC to acquire a detailed understanding of the larger geographical context surrounding the flight operations area and review relevant factors with the client before the commencement of any work or service.

CONDITIONS AND LIMITATIONS

As set forth in Drone Skyworks, LLC Flight Operations and Procedures Manual (FOPM), which includes: All manufacturer documentation for the Inspire 1 sUAS and Drone Skyworks, LLC proprietary operations documentation for all sUAS operations (e.g., Flight Operations Protocols, Flight Checklists and Operating Procedures, Pilot Flight Log, sUAS Flight Log, Monthly Maintenance Log, Client Site Safety and Planning Template, Pre-Flight Operations On-Site Client Safety Briefing, Battery Power Management Matrix, and Permission to Conduct Onsite Flight Operations Consent Form), the applicant proposes the following limitations and conditions:

1. UAS must weigh less than 55 pounds;
2. UAS airspeed is not to exceed 50 knots;
3. UAS flights may not operate at more than 400 AGL. Altitudes reported to ATC must be in feet AGL;
4. UAS must be operated within Visual Line of Sight (VLOS) of the PIC and VO;
5. All operations will utilize a VO. The VO may be utilized as long as the PIC maintains VLOS capability and can communicate with the VO at all times;
6. The operator's manuals and flight operations protocols will be amended to and revised as new conditions and/or limitations become known;
7. The PIC will conduct a full inspection of the sUAS (including remote controllers) to ensure it is in full working order and safe for flight prior to every takeoff;
8. A functional test flight must be performed following the maintenance, alteration or repair of any sUAS. Test flights will be performed by the PIC prior to the sUAS's return to service. All such test flights will be noted and logged in the Monthly Maintenance Log (see Attachment K), the PIC's personal Pilot Flight Log (see Attachment I) and the sUAS Flight Log (see Attachment J).
9. The operator must follow the manufacturer's sUAS aircraft/component, maintenance, overhaul, replacement inspection and life limit requirements. The following must be included in the operator's manual;
    a. Actuators/Servos;
    b. Power plant (motors);
    c. Propellers;
    d. Electronic speed controller;
    e. Batteries;
    f. Mechanical or dynamic components;
    g. Remote command and controller(s);
    h. Navigational screen/interface; and any other component(s) as determined by the operator.
10. The PIC must possess at minimum a light sport pilot certificate and a valid U.S. driver's license. Additionally, the PIC must meet the flight review requirements specified in 14 CFR § 61.56;
11. A PIC must have accumulated and logged, in a manner consistent with 14 CFR § 61.51 (b), a minimum of 200 flight hours and 25 hours as a UAS rotorcraft pilot and at least ten hours logged as a UAS pilot with a similar sUAS type;
12. A PIC must have accumulated and logged, in a manner consistent with 14 CFR § 61.51 (b), a minimum of five hours as a sUAS pilot operating the make and model of sUAS to be utilized for operations under the exemption and three takeoffs and three landings in the preceding 90 days. The PIC must operate the sUAS with appropriate distance from non-participants in accordance with 14 CFR § 91.119;
13. The PIC and VO must have completed a qualification process;

14. A flight demonstration, administered by an operator and a qualified pilot must be completed and documented in accordance with the operator's manual;
15. The sUAS may not be operated directly over any person, except authorized and consenting inspection and/or operations personnel, below an altitude that is hazardous to persons or property;
16. All participating persons must be essential and consent to the sUAS operation which should require no further FSDO or ASI approval;
17. The operator must ensure that no persons are allowed within 500 feet of the area except those consenting to be involved and who are necessary for the on-going operation of the entity being inspected or photographed;
18. If the sUAS loses communications or loses its GPS signal, the sUAS must return to a pre-determined location within the security perimeter of the flight operations area and land or be recovered in accordance with the operator's manual;
19. The PIC must abort the sUAS flight in the event of unpredicted obstacles or emergencies in accordance with the operator's manual;
20. Each operation must be completed within 20 minutes flight time or with no less than 25% battery power remaining, whichever occurs first;
21. The operator must contain an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA) prior to conducting any operations under this grant of exemption. This COA will also require the operator to request a Notice to Airman (NOTAM) not more than 72 hours in advance, but no less than 48 hours prior to the operation;
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 possible;
23. The operator must develop procedures to document and maintain a record of the sUAS maintenance, alterations, status of replacement/overhaul component parts and the total time in service of the sUAS;
24. Each sUAS operated under this exemption will comply with all manufacturing safety bulletins;
25. The operator will develop sUAS technician qualification criteria. And the criteria will be in the operator's manual;
26. The pre-flight inspections section of the operator's manual will include the requirement that the pre-flight inspection will account for all discrepancies, e.g., inoperable components, items, or equipment;
27. Before conducting operations, the radio frequency spectrum used for operation and control of the sUAS will comply with the FCC or other appropriate government oversight agency requirements;
28. At least three days before a scheduled flight operation the operator of the sUAS affected by this exemption will submit a written plan of activity to the local FSDO with jurisdiction

over the area of the proposed inspection. The 3-day notification may be waived with the concurrence of the FSDO. The plan of activities will include the following:

a. Dates and times for all flights
b. Name and phone number of the operator for the sUAS flight operation conducted under this grant of exemption
c. Name and phone number of the person responsible for the on-site operation of the sUAS
d. Make, model, and serial and N-number of sUAS to be used
e. Name and certificate number of sUAS PIC(s) involved in the flight operation
f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the flight operation; the list of those who gave permission shall be made available to the inspector upon request
g. Signature of exemption-holder or representative
h. The description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which the flight operation will be conducted and the altitudes essential to accomplish the operation
i. The documents required under 14 CFR §§91.9 and 91.203 must be available to the PIC at the ground control station of the sUAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

29. The sUAS must remain clear and yield the right of way to all other manned operations and activities at all times (including, but not limited to ultra-light vehicles, parachute activities, parasailing activities, hand gliding, etc.);
30. sUAS operations may not be conducted during night, as defined in 14 CFR § 1.1
31. All operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized;
32. The sUAS cannot be operated by the PIC from any moving device or vehicle;
33. The sUAS may not be operated less than 500 feet below or less than 2000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC;
34. The sUAS may not be operated in class B, C, or D airspace without written approval from the FAA. The sUAS may not operate within 5 nautical miles of the geographic center of a non-towered airport as denoted on a current FAA- published aeronautical chart unless a letter of agreement with the airport's management is obtained, and the operation is conducted in accordance with a NOTAM as required by the operator's COA. The letter of agreement with the airport management must be made available to the administrator upon request;
35. Any 1) Incident, 2) Accident, or 3) Flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the Federal Aviation Administration's (FAA) UAS Integration Office (AFS-80) within 24 hour. Accidents must be reported to the National Transportation Safety Board (NTSB) per

instruction contained on the NTSB website: www.ntsb.gov. Further flight operations may not be conducted until the incident, accident or transgression is reviewed by the AFS-80 and authorization to resume operations is provided;

36. The sUAS, PIC and operator will comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

LIST OF PROPRIETARY FLIGHT OPERATIONS, STANDARDS, PROTOCOLS AND PROCEDURES DOCUMENTATION

As noted earlier, Drone Skyworks' FOPM includes all manufacturer's documentation for the DJI Inspire 1 sUAS, as well as a number of flight operations protocols, requirements and procedures Drone Skyworks, LLC considers proprietary. Together, these documents governing the planning, management and execution of all Drone Skyworks, LLC flight operations. The FOPM is reviewed and updated on a regular basis to ensure it is accurate, current and reflects any new FAA requirement, change of standard and any improvement or addition to its flight operations Drone Skyworks, LLC considers to be in its clients' and the public's best interest.

Nine of the fifteen attachments included (see Attachments G, H, I, J, K, L, M, N, O) and referenced in the request for exemption contain commercial proprietary information that Drone Skyworks, LLC has chosen not to share with others except under appropriate confidentiality agreements at this time. These attachments contain operating conditions, graphics and procedures that have been developed exclusively by Drone Skyworks, LLC, and that are not available to the public. Drone Skyworks, LLC is respectfully requesting that these attachments be treated as proprietary information pursuant to 14 C.F.R. Section 11.35, and maintains that they are protected from release under the Freedom of Information Act. See 5 U.S.C. 552 et seq.

REGULATIONS FROM WHICH THE EXEMPTION IS REQUESTED:

14 CFR Part 21
14 CFR 61.113 (a) & (b)
14 CFR 61.133 (a)
14 CFR 91.7 (a)
14 CFR 91.9 (b) (2)
14 CFR 91.109 (a)
14 CFR 91.119
14 CFR 91.121
14 CFR 91.151 (a)
14 CFR 91.203 (a) & (b)
14 CFR 91.405 (a)
14 CFR 407 (a) (1)
14 CFR 409 (a) (2)
14 CFR 417 (a) & (b)

14 C.F.R. 21: Certification Procedures for Products and Parts

This section outlines requirements for the issue of design and production approvals, airworthiness certificates, and other airworthiness approvals. Drone Skyworks, LLC is aware that if an exemption is granted as per Section 333, an airworthiness certificate would be issued and a request for exemption from Part 21 is unnecessary. However, as outlined in the List of Limitations and Conditions in this application, as well as all of the Attachments to this application, comprising the FOPM, Drone Skyworks, LLC seeks to uphold the same level or exceeded level of safety as described in Part 21 of 14 C.F.R.

14 C.F.R. § 61.113 (a) & (b), 61.133 (a): Private Pilot Privileges and Limitations: Pilot in Command. Commercial Pilot Privileges and Limitations.

Sections 61.113 (a) & (b) limit private pilots to non-commercial operations. Because the sUAS will not carry a pilot or passengers, the proposed operations can achieve the equivalent level of safety of current operations by requiring the PIC operating the aircraft to have a private pilot's license rather than a commercial pilot's license to operate this sUAS. Unlike a conventional aircraft that carries the pilot and passengers, the sUAS is remotely controlled with no living thing on board. The area of operation is controlled and restricted, and all flights are planned and coordinated in advance as set forth in the FOPM. The level of safety provided by the requirements included in the FOPM exceeds that provided by a single individual holding a commercial pilot's certificate operating a conventional aircraft. The risks associated with the operation of the sUAS are so diminished from the level of risk associated with commercial operations contemplated by Part 61 when drafted, that allowing operations of the sUAS as requested with a private pilot as the PIC exceeds the present level of safety achieved by 14 C.F.R. §61.113 (a) & (b).

14 C.F.R. § 91.7 (a): Civil aircraft airworthiness.

The regulation requires that no person may operate a civil aircraft unless it is in airworthy condition. As there will be no airworthiness certificate issued for the aircraft, should this exemption be granted, no FAA regulatory standard will exist for determining airworthiness. Given the size of the aircraft and the requirements contained in the FOPM for maintenance and use of safety checklists prior to each flight, an equivalent level of safety will be provided.

14 C.F.R. § 91.9 (b) (2): Civil Aircraft Flight Manual in the Aircraft.

Section 91.9 (b) (2) provides: No person may operate a U.S.-registered civil aircraft ...

(2) For which an Airplane or Rotorcraft Flight Manual is not required by §21.5 of this chapter, unless there is available in the aircraft a current approved airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof. The sUAS, given its size and configuration has no ability or place to carry such a flight manual on the aircraft, not only because there is no pilot on board, but because there is no room or capacity to carry such an item on the aircraft.

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

Section 91.109 provides that no person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls. sUAS and remotely piloted aircraft, by their design do not have fully functional dual controls. Flight control is accomplished through the use of a control box that communicates with the aircraft via radio communications. The FAA has approved exemptions for flight training without fully functional dual controls for a number of aircraft and for flight instruction in experimental aircraft.

14 C.F.R. § 91.119: Minimum safe altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. Section 91.119 (d) allows helicopters to be operated at less than the minimums prescribed, provided the person operating the helicopter complies with any route or altitudes prescribed for helicopters by the FAA. As this exemption is for a sUAS that is a helicopter and the exemption requests authority to operate at altitudes up to 400 AGL, or not more than 200 above an elevated platform from which filming is planned, an exemption may be needed to allow such operations. As set forth herein, except for the limited conditions stated in the Manual, the UAS will never operate at higher than 400 AGL. It will however be operated in a restricted area with security perimeter, where buildings and people will not be exposed to operations without their pre-obtained consent. The equivalent level of safety will be achieved given the size, weight and speed of the sUAS as well as the location where it is operated. No flight will be taken without the permission of the property owner or local officials. Because of the advance notice to the property owner and participants in the activity, all affected individuals will be aware of the planned flight operations as set forth in the FOPM.

14 C.F.R. § 91.121 Altimeter Settings

This regulation requires each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set "...to the elevation of the departure airport or an appropriate altimeter setting available before departure." As the sUAS may not have a barometric altimeter, but instead a GPS altitude read out, an exemption is needed. An equivalent level of safety will be achieved by the operator, pursuant to the FOPM, confirming the altitude of the launch site shown on the GPS altitude indicator before flight.

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

This regulation prohibits an individual from beginning "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." The battery powering the sUAS provides approximately 18 minutes of powered flight. To meet the 30-minute reserve requirement in 14 CFR § 91.151, sUASs flights would be limited to approximately 10 minutes in length. Given the limitations on the sUAS proposed flight area and the location of its proposed operations within a predetermined area, a longer time frame for flight in daylight or night VFR conditions is

reasonable. Limiting sUAS flights to 10 minutes would greatly reduce the utility for which the exemption will be granted. An equivalent level of safety can be achieved by limiting flights to 20 minutes or 25% of battery power whichever is reached first. This restriction would be more than adequate to return the sUAS to its planned landing zone from anywhere in its limited operating area.

14 C.F.R. § 91.203 (a) and (b): Carrying Civil Aircraft Certification and Registration

The regulation provides in pertinent part: (a) Except as provided in § 91.715, no person may operate a civil aircraft unless it has within it the following: (1) An appropriate and current airworthiness certificate. . . . (b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under §91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew. The sUAS, fully loaded, weighs no more than 55 lbs. and is operated without an onboard pilot. As such, there is no ability or place to carry certification and registration documents or to display them on the sUAS. An equivalent level of safety will be achieved by keeping these documents at the ground control point where the PIC flying the sUAS will have immediate access to them, to the extent they are applicable to the sUAS.

14 C.F.R. § 91.405 (a); 407 (a) (1); 409 (a) (2); 417 (a) & (b): Maintenance Inspections

These regulations require that an aircraft operator or owner "shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter…" and others shall inspect or maintain the aircraft in compliance with Part 43. Given that these section and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply to the applicant. The operator pursuant to the FOPM will accomplish maintenance. An equivalent level of safety will be achieved because this sUAS is very limited in size and will carry a small payload and operate only in restricted areas for limited periods of time. If mechanical issues arise the sUAS can land immediately and will be operating from no higher than 400 feet AGL. As provided in the FOPM, the operator will ensure that the sUAS is in working order prior to initiating flight, perform required maintenance, and keep a log of any maintenance performed. Moreover, the operator is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

THE APPLICABLE LEGAL STANDARD UNDER SECTION 333

Drone Skyworks, LLC submits that grant of this exemption application advances the Congressional mandate in Section 333 of the Reform Act to accelerate the introduction of sUASs into the NAS if it can be accomplished safely. This law directs the Secretary of Transportation to consider whether certain UASs may operate safely in the NAS before completion of the rulemaking required under Section 332 of the Reform Act. In making this determination, the Secretary is required to determine which types of sUASs do not create a

hazard to users of the NAS, the public, or pose a threat to national security in light of the following:

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

Reform Act § 333 (a) (1). If the Secretary determines that such vehicles "may operate safely in the national airspace system, the Secretary shall establish requirements for the safe operation of such aircraft in the national airspace system." Id. § 333 (c).

The Federal Aviation Act expressly grants the FAA the authority to issue exemptions. This statutory authority, by its terms, includes exempting civil aircraft, as the term is defined under § 40101 of the Act, from the requirement that all civil aircraft must have a current airworthiness certificate and those regulations requiring commercial pilots to operate aircraft in commercial service:

> The Administrator may grant an exemption from a requirement of a regulation prescribed under subsection (a) or (b) of this section or any of sections 4470244716 of this title if the Administrator finds the exemption is in the public interest.

The grant of the requested exemption is in the public interest based on the clear direction in Section 333 of the Reform Act; the additional authority in the Federal Aviation Act, as amended; the strong equivalent level of safety surrounding the proposed operations; and the significant public benefit, including enhanced safety and cost savings associated with use of UASs for aerial videography/photography, the reduction or elimination of unregulated operators, and the safe integration of UASs. Accordingly, the applicant respectfully requests that the FAA grant the requested exemption without delay.

CONCLUSION

As set forth herein, Drone Skyworks, LLC seeks an exemption pursuant to 14 C.F.R. § 11.61 and Section 333 of the FAA Modernization and Reform Act of 2012 from the requirements of 14 CFR § 21; 61.113 (a) & (b); 61.133 (a); 91.7 (a); 91.9 (b); 91.109 (a); 91.119 (c); 91.121; 91.151 (a); 91.203; 91.405 (a); 91.407 (a) (1); 91.409 (a) (2); 91.417 (a) & (b), which will permit safe operation of the sUAS commercially, without an airworthiness certificate, for the limited purpose of conducting aerial imagery over small, defined operational areas of the United States.

Approval of the exemption allowing commercial operations of Drone Skyworks, LLC sUAS will increase safety by permitting an operator to conduct a service safely by adhering to the prescribed guidelines. The exemption will also encourage the education of sUAS operators and the adoption of FAA guidelines and approval for commercial sUAS operations as pertains

to Drone Skyworks, LLC employees and contractors. It will allow Drone Skyworks, LLC to provide a service that benefits the public and local businesses. It benefits the public through a higher level of safety of sUAS operations and through a smooth integration of sUASs into the NAS. Having a pilot-owned business bridges the gap between the advancement of sUAS technology and the current practices and operations in the NAS and with the FAA. This assists the FAA with its mission of promoting aviation while preserving safety of aviators, the public and property. The sUAS operated by Drone Skyworks, LLC satisfies the criteria set forth in § 333 of the Reform Act – size, weight, speed, operating capabilities, operation within visual line of sight, and national security – and showing an equivalent level of safety to manned aircraft flights through appropriate pilot certification and safety-focused standards of operation. This provides more than adequate justification for the grant of the requested exemptions allowing commercial operations.

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 Drone Skyworks, LLC to safely, efficiently and economically operate the sUAS commercially within the NAS.

Respectfully,

Thomas E. Cmejla
Drone Skyworks, LLC

ATTACHMENTS

DJI Inspire 1 Manufacturer Documentation

A. DJI Inspire 1 Overview and Specifications Data Sheet.pdf
B. DJI Inspire 1 User Manual_v1.2.pdf
C. DJI Inspire 1 Safety Guidelines.pdf
D. DJI Inspire 1 Quick Start Guide.pdf
E. DJI Inspire 1 Maintenance Manual_v1.0.pdf
F. DJI Inspire 1 Intelligent Flight Battery Safety Guidelines.pdf

Drone Skyworks, LLC Proprietary Documentation

G. Drone Skyworks, LLC Flight Operations Protocols for all sUAS.pdf
H. Drone Skyworks, LLC Flight Checklists and Operating Procedures.pdf
I. Drone Skyworks, LLC Pilot Flight Log.pdf
J. Drone Skyworks, LLC sUAS Flight Log.pdf
K. Drone Skyworks, LLC Monthly Maintenance Log.pdf
L. Drone Skyworks, LLC Client Site Safety and Planning Template.pdf
M. Drone Skyworks, LLC Pre-Flight Operations On-Site Client Safety Briefing.pdf
N. Drone Skyworks, LLC Permission to Conduct Onsite Flight Operations Consent Form
O. Drone Skyworks, LLC Battery Power Management Matrix.pdf