

December 25, 2014

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

Re: Exemption Request Under Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the "Reform Act") and 14 C.F.R. Part 11, Stunning Heights LLP ("Stunning Heights"), an operator of the DJI T600 ("T600") Unmanned Aircraft System ("UAS") and developer/operator of the SH900 UAS, seeks exemption from the Federal Aviation Regulations ("FARs") as described below.

The exemption request will permit Stunning Heights LLP to operate UASs commercially for the purpose of filming and photographing property, people, and events. Stunning Heights will provide a service that is beneficial to an industry that is already using, and seeking to use, UASs for these purposes with a legal and safe option while providing relevant experience and information to the FAA and the UAS community. This will benefit the public with the controlled operation of UASs by Stunning Heights and increased integration into the National Airspace System ("NAS").

All operations by Stunning Heights will strictly adhere to safety, applicable FARs, Operator's Handbook, applicable Airworthiness Directives, and all other guidelines from the FAA. Stunning Heights will, at all times, conduct operations in a manner as to maintain the same level of safety as current manned aircraft operations.

Stunning Heights will operate exclusively in controlled conditions, within visual line of sight ("VLOS"), at low altitudes of 400 feet above ground level ("AGL"), or no higher than 200 feet above the highest obstacle ("AHO") with prior Flight Safety District Office ("FSDO") approval. Any UAS in operation by Stunning Heights will not exceed 55 lbs. weight.

At all times Stunning Heights will have a Chief Pilot responsible to properly train, maintain safe operations, ensure currency requirements are met, and consistently assure an open line of communication with the FAA. The Chief Pilot will, at a minimum, be a certificated commercial pilot and maintain a class 2 medical.

Stunning Heights is poised to be the model of a safe and responsible approach to integrate the UASs into the NAS through the experience of a professional aviator and UAS enthusiast. As a pilot owned business, Stunning Heights will maintain the highest of standards in all UASs

operations. A thorough understanding of the importance of safety guidelines in the NAS, and a desire to promote the appropriate integration of UASs for the furtherance of aviation as a whole is the foundation upon which this business will operate.

The name and address of the applicant are:

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The regulations from which the exemption is requested are as follows:

14 C.F.R. Part 21;
14 C.F.R. 91.7(a);
14 C.F.R. 91.9(b)(2);
14 C.F.R. 91.109(a);
14 C.F.R. 91.119;
14 C.F.R. 91.105
14 C.F.R. 91.151(a);
14 C.F.R. 91.203(a) & (b);
14 C.F.R. 91.405(a);
14 C.F.R. 91.407(a)(1);
14 C.F.R. 91.409(a)(2);
14 C.F.R. 91.417(a).

Appendix A discusses each rule listed above and explains why exemptions pursuant to the proposal set forth in this letter are appropriate, provide an equivalent level of safety, and are in the public interest.

The Applicable Legal Standard Under Section 333

Stunning Heights submits that grant of this exemption application advances the Congressional mandate in Section 333 of the Reform Act to accelerate the introduction of UASs 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 UASs 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 operator.

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) (emphasis added).¹

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 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 44702-44716 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.

Airworthiness

Grant of the exemption to Stunning Heights will be subject to the following mandatory airworthiness conditions:

- The UAS will never exceed a gross takeoff weight (GTOW) of 55 lbs., or in excess of the Operator Handbook/Manufacturer recommendations, whichever is more restrictive.
- The Manufacturer checklist and Stunning Heights preflight checklist will be followed prior to each flight.

¹ Applicant submits that this provision places a duty on the Administrator to not only process applicants for exemptions under Section 333, but for the Administrator, if he deems the conditions proposed herein require modification in order to allow approval, to supply conditions for the safe operation of the UAS. Stunning Heights respectfully requests the opportunity to consult with FAA staff in order to address any issues or concerns that this proposal may raise that they believe may require modification.

- The aircraft registration number will be displayed on the aircraft in accordance with current regulations.
- The POH, registration, copy of exemption, checklist, and copy of maintenance records will be mandatory documents for operation and must be located with or in the base station and accessible to the PIC at all times.
- Any FAA or manufacturer required placards are placed and clearly visible on the base station or controlling device.
- All equipment installed on the UAS will be operational for flight.
- PIC will be the determining authority on the airworthiness of the UAS prior, during, and after each flight, and will cease operations upon deeming the UAS not airworthy until proper maintenance or action has been taken.
- In adherence to 14 C.F.R. §43.9 each person who maintains, performs preventative maintenance, rebuilds, or alters the UAS, airframe, motor, propeller, appliance, or component part will make an entry in the maintenance record of that equipment containing the following information:
 - Description of work performed.
 - Date of completion of work performed.
 - Name of the person performing the work.
 - Signature of the person performing the work.
- In addition to the information above, the following will be included on any maintenance records for record keeping and reporting to the FAA upon request:
 - Aircraft total time.
 - Time in service of part by method of Time Since New (TSN) or Time Since Overhaul (TSO).
 - Manufacturer, model, serial and/or part number when available.
- Any maintenance action that may affect flight characteristics or airworthiness will have a maintenance operational check and test flight performed by a pilot holding at minimum a private pilot certificate and an appropriate entry made in the UAS records.

Mandatory Operating Conditions

Grant of the exemption to Stunning Heights will be subject to the following mandatory operating conditions:

- Operations occurring within Class B airspace require coordination and approval from the FAA Flight Standards District Office having jurisdiction, and upon request with Air Traffic Control one hour prior to operations commencing (14 CFR §91.215(d)(3)). Communication commencing operations, during operations, and termination of operations by use and constant monitoring of appropriate tower frequency by ground radio.
- Operations within Class B 30NM Mode C Veil require at minimum 48 hour prior notification of the FAA Flight Standards District Office having jurisdiction. Notification and communication with Air Traffic Control upon commencing

operations, during operations, and termination of operations by use and constant monitoring of appropriate tower frequency by ground radio (14 CFR §91.215(3)).

- Operations within Class C, or D airspace require notification at minimum 24 hour prior notification of the FAA Flight Standards District Office having jurisdiction, and upon request with Air Traffic Control one hour prior to operations commencing (14 CFR §91.215(d)(3)). Communication commencing operations, during operations, and termination of operations by use and constant monitoring of appropriate tower frequency by ground radio.
- Operations within 2.5 NM radius of airport runway centerline within class E, or G airspace require at a minimum 24 hour prior notification of the FAA Flight Standards District Office having jurisdiction, at a minimum 24 hour prior notification of the Airport Manager or Controlling Agency, notification and communication with any control tower, or on CTAF frequency, upon commencing operations, during operations, and termination of operations by use and constant monitoring of appropriate frequency by ground radio.
- Operations within class E or G airspace not within 2.5 NM of airport runway centerline requires constant monitoring of applicable CTAF or 123.025 (helicopter air to air) and reporting upon commencing operations, during operations, and termination of operations by ground radio.
- No operations are to be conducted within 2.5 NM in-line with runway centerline azimuth and on the approach end of a runway that is actively in use.
- All operations are required to remain at, or below, 400 feet AGL unless prior approval is received from the FAA Flight Standards District Office having jurisdiction, and no flight exceeding 400 feet AGL may go above 200 feet above the highest obstacle, or outside visible range, or beyond the capability of the UAS (whichever is lower in altitude).
- Operations are to be conducted over private or controlled-access property.
- Permission from land owner/controller required before commencing any flight.
- Operations to occur under Visual Flight Rules during Visual Meteorological Conditions (VMC).
- Aircraft to remain within Visual Line of Sight (VLOS).
- Operations to be conducted in a controlled environment with only the necessary persons present, any person present, not employed by Stunning Heights, will sign a waiver acknowledging UAS operations, proper safety procedures, and a statement acknowledging risks.
- Operations will be conducted with a visual observer (VO), in addition to the UAS pilot, who will remain in VLOS with the UAS pilot, the UAS, and the area of operations at all times. VO will assist in maintaining a controlled environment, spotting hazards to persons or property, monitoring and communicating on appropriate ATC, CTAF, or other appropriate radio frequencies.

- UAS will not be operated below 25% battery capacity, or a battery power reserve of less than 10% flight time, whichever is the greater of the two.

Operator Requirements

Stunning Heights understands and upholds the stance that necessary precautions are required to protect aircraft already operating in the NAS, and the safety and security of the flight crew members, passengers as well as the public and property. For this reason Stunning Heights will require all pilots of the UAS to be a certified private pilot with third class medical at a minimum. Furthermore Stunning Heights will use an appropriately certified pilot for the type of operation being conducted as it would fall under 14 C.F.R. if it were a manned aircraft.

The PIC and the Visual Observer will, at all times, be aware that UASs currently cannot adhere to the standard “see and avoid” requirements due to the size of the UAS impacting the distance at which it can be identified by pilots of manned aircraft. Stunning Heights maintains a zero tolerance policy for any pilot that fails to give complete right of way, and wide berth to any aircraft that comes within 1 statute mile horizontally or 2000 feet vertically of operations. At all times the PIC and VO will monitor appropriate ATC, CTAF, or air to air frequency, announce actions, and adhere to requests of any manned aircraft, airspace controller, FAA representative, or law enforcement official so long as it can be performed safely and legally.

In the interest of safety, and the furtherance of aviation, Stunning Heights requires it’s operators to adhere to its “See and Hear” policy. This policy requires that any aircraft that can be both observed and heard (excluding large turbine, turboprop, and other aircraft that are heard and seen but are clearly 2000 feet above the highest permitted altitude of the UAS) by the PIC or the VO will require UAS operations to cease until the aircraft acknowledges the operations of the UAS verbally through radio communications.

The PIC will adhere to appropriate FARs as well as follow the included Stunning Heights Training Manual. The PIC will, while the exemption is in place, log all flights conducted for Stunning Heights, or any flight to meet the training requirements.

The visual observer will be trained according to the Stunning Heights Training Manual. The VO will be required to exhibit proficiency in operating and communicating using the radio. The VO will not, at any time during operations conducted under this exemption, operate or control any portion of the flight of the UAS unless they meet the PIC requirements of this exemption.

Privacy

All flights will occur over private or controlled access property with the property owner’s or controlling authorities prior consent and knowledge. Filming will be of people who have also

consented to being filmed or otherwise have agreed to be in the area where filming will take place.

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In summary, applicant seeks an exemption from the FARs set forth above and in Appendix A to allow commercial operations of UASs conducting aerial flights as described.

Approval of the exemption allowing commercial operations of Stunning Heights UASs will increase safety by permitting an operator to conduct a service safely that is already occurring without FAA knowledge, exemption, or adhering to prescribed safety guidelines. The exemption will also encourage the education of UAS operators and the adoption of FAA guidelines and approval for commercial UAS operations. It benefits the public through a higher level of safety of UAS operations and a service that benefits the local public and business. It also benefits the public through a smooth and well approached integration of UASs into the NAS, and continual communication with the FAA and the information gained. Having a pilot owned business aids in bridging the gap between the advancement of UAS 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 UASs operated by Stunning Heights satisfies the criteria set forth in Section 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, providing more than adequate justification for the grant of the requested exemptions allowing commercial operations.

Respectfully,



Matthew C. Baker II
Owner and Chief Pilot
Stunning Heights, LLP

EXEMPTION REQUEST AND EQUIVALENT LEVEL OF SAFETY SHOWINGS UNDER APPLICABLE RULES SUBJECT TO EXEMPTION

Due to the flight characteristics, such as the ability to hover, vertical takeoff and landing, and the type of operations performed by the UASs operated by Stunning Heights stunning heights respectfully request that where a regulation differentiates according to class that it be permitted to operate under those regulations pertaining to helicopters.

Stunning Heights requests an exemption from the following regulations as well as any additional regulations that may technically apply to the operation of its UASs:

14 C.F.R. Part 21, Subpart H: Airworthiness Certificates

14 CFR § 91.203(a)(1)

Section 91.203(a)(1) requires all civil aircraft to have a certificate of airworthiness. Part 21, Subpart H, entitled Airworthiness Certificates, establishes the procedural requirements for the issuance of airworthiness certificates as required by FAR § 91.203(a)(1). Given the size of the aircraft and the limited operating area associated with its utilization, it is unnecessary to go through the certificate of airworthiness process under Part 21 Subpart H to achieve or exceed current safety levels.

Such an exemption meets the requirements of an equivalent level of safety under Part 11 and Section 333 of the Reform Act. The Federal Aviation Act and Section 333 of the Reform Act both authorize the FAA to exempt aircraft from the requirement for an airworthiness certificate, upon consideration of the size, weight, speed, operational capability, and proximity to airports and populated areas of the UAS involved.

In this case, an analysis of these criteria demonstrates that the Stunning Heights UASs operated without an airworthiness certificate, under the conditions proposed herein, will be at least as safe, or safer, than a conventional aircraft (fixed wing or rotorcraft) with an airworthiness certificate. The UASs will remain less than 55 lbs. GTOW. Will not carry a pilot or passenger, will not carry flammable fuel, and will operate exclusively within an area pre-disclosed and in compliance with conditions set forth herein. Operations under this exemption will be tightly controlled and monitored by both the operator, pursuant to the conditions set forth above, and by local public safety requirements. The FAA will have advance notice of all operations through the filings with the FSDO. Receipt of the prior permission of the land owner, or controlling authority, the size of the aircraft, the lack of flammable fuel, and the fact that the aircraft is carried to the location and not flown there all establish the equivalent level of safety. The UASs construction with absorbent

material provides at least an equivalent level of safety to that of such operations being conducted with conventional aircraft that would be orders-of-magnitude larger and would be carrying passengers, cargo, and flammable fuel.

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

This regulation requires that no person may operate a civil aircraft unless it is in airworthy condition. Should the exemption be granted allowing commercial operation of the UASs without an airworthiness certificate, no standard will exist for airworthiness of the UASs. Given the size of the aircraft and the requirements that have presumably already been met in the approved standard operating procedures (for instance, the Maintenance & Inspection Manual and Safety Checklist), an equivalent level of safety will be achieved by ensuring compliance with the operating manuals prior to each flight.

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

The regulation 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 equivalent level of safety will be achieved by keeping the flight manual at the ground control point where the pilot flying the UAS will have immediate access to it. The FAA has issued to others the following exemptions to this regulation: Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167, 10167A, 10602, 32827, and 10700.

14 C.F.R. § 91.109(2)

This regulation provides that flight crewmembers must keep a safety belt fastened while at a crewmember station. Stunning Heights UASs are by definition not manned and therefore maintain an equivalent level of safety without the use of safety belt since no danger is posed due to no persons being aboard the aircraft.

14 C.F.R. § 91.121(a)

This regulation requires that aircraft be operated at altitude in reference to an altimeter set to applicable barometric pressure. According to the Flight Manuals and information included with this exemption request the UASs operated by Stunning Heights uses GPS positioning, and the T600 uses, in addition, a specialized sensor that limits the aircraft altitude to a predetermined height set by the pilot during preflight inspections. This, in addition to all flights being conducted by VLOS, assures altitude restrictions will be maintained by the pilot. Given the nature of the flight being limited to an upper altitude limit, the limited area of operations, the See and Avoid procedures set forth by Stunning Heights, and in light of the UASs not being operated at VFR or IFR cruising altitudes an equivalent level of safety will be achieved.

14 C.F.R. § 91.109(a) & 91.319(a)(1): Flight Instruction

These regulations provide 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. UASs are a remotely piloted aircraft and by 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. If instruction is accomplished through a training program, as set forth in an equivalent level of safety will be assured. 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. See Exemption Nos. 5778K & 9862A. The equivalent level of safety will be achieved by the Stunning Heights providing the training as outlined.

14 CFR § 91.119: Minimum Safe Altitudes

Section 91.119 establishes safe altitudes for operation of civil aircraft. Due to the flight characteristics of Stunning Heights UASs (vertical takeoff and landing, and ability to hover) as well as the nature of the type of flights conducted by UASs and the similarity to helicopters Stunning Heights requests to operate in accordance with section 91.119(d). The equivalent level of safety will be achieved given the size, weight, speed, and material with which the UASs are built. Furthermore; no flight will be taken without the permission of the land owner or those who control the land. Because of the advance notice to the landowner, all affected individuals will be notified of the flights. Compared to aerial photography or videography operations conducted with aircraft or rotorcraft weighing far more than the UAS and carrying flammable fuel, any risk associated with these operations will be far less than those currently allowed with conventional aircraft operating at or below 500 feet AGL. Indeed, the low-altitude operations of the UAS will maintain separation between these small-UAS operations and the operations of conventional aircraft that must comply with Section 91.119, give right of way to all manned aircraft, and adhere to Stunning Heights See and Hear policy.

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

This regulation prohibits an individual from beginning “a flight in a rotorcraft 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 20 minutes.”

Given the limitations on its proposed operations and the location of those proposed operations, a longer time frame for flight in daylight VFR conditions is reasonable. Stunning Heights believes that an exemption from 14 CFR § 91.151(b) is safe and within the scope of a prior exemption. See Exemption 10673 (allowing Lockheed Martin Corporation to operate without compliance with 91.151(a)). Operating the small UAS, without 20 minutes of reserve fuel does not engender the type of risks that Section 91.151(b) was meant to prevent given the size and speed at which the UAS operates. The fact that it carries no pilot, passenger, or cargo also enhances its safety. Additionally, limiting flights to a 20 minute reserve would greatly reduce their utility. In the unlikely event that the UAS should run out of fuel, it would simply land. Given its weight and construction material, the risks are less than contemplated by the current regulation.

Stunning Heights believes that an equivalent level of safety can be achieved by maintaining 25% battery power, or 10% of time (whichever is longer) would be more than adequate to return the UAS to its planned landing zone from anywhere in its operating area.

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

This regulation provides as follows:

(a) . . . no person may operate a civil aircraft unless it has . . . 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.

Stunning Heights UASs have no cockpit or cabin to place or carry certification. As such, the exemption and any other certifying document from the FAA will be maintained with the ground station, and placed in a manner as to be clearly visible to any government official or person authorized in the controlled operations environment.

An equivalent level of safety will be achieved by keeping these documents at the ground control point where the pilot flying the UAS will have immediate access to them. The FAA has issued numerous exemptions to this regulation. A representative sample of other exceptions includes Exemption Nos. 9565, 9665, 9789, 9789A, 9797, 9797A, 9816A, and 10700.

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

Section 91.405(a) requires 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” Section 91.407 similarly makes reference to requirements in Part 43; Section 91.409(a)(2) requires an annual inspection for the issuance of an airworthiness certificate.

Section 91.417(a) requires the owner or operator to keep records showing certain maintenance work that has been accomplished by certificated mechanics, under Part 43, or licensed pilots and records of approval of the aircraft for return to service.

Maintenance on Stunning Heights aircraft will be accomplished by the owner/operator pursuant to the manuals, provided by Stunning Heights, and the manufacturer. An equivalent level of safety will be achieved because the UAS is small in size, will operate only in restricted predetermined areas and is not a complex mechanical device. As provided in the attached Maintenance Manual and the Safety Checklist, which were reviewed as part of the application, the operator of the UAS will ensure that it is in working order prior to initiating flight, perform required maintenance, and keep a log of any maintenance that is performed. Moreover, the Stunning Heights Chief Pilot is familiar with the aircraft, has extensive experience with UAS maintenance, and has thousands of hours of helicopter airframe and powerplant maintenance, and is best suited to maintain the aircraft in an airworthy condition and to ensure an equivalent level of safety.

The Stunning Heights Maintenance Manual provides for a 30 day/100 hour and Annual inspection of the airframe and components similar in scope to inspections on manned aircraft. This will ensure an equivalent level of safety to the maintenance requirements in Part 91.

In addition, between such inspections, should a mechanical issue arise, the aircraft will either return to its launch site or immediately land.

APPENDIX B

SUMMARY OF STUNNING HEIGHTS SECTION 333 EXEMPTION REQUEST

Stunning Heights hereby provides pursuant to Part 11 a summary of its exemption application to allow commercial operation of its UASs in aerial photography/videography. An exemption is requested from the following regulations:

14 C.F.R. Part 21;

14 C.F.R. 91.7(a);

14 C.F.R. 91.9(b)(2);

14 C.F.R. 91.109(a);

14 C.F.R. 91.119;

14 C.F.R. 91.105

14 C.F.R. 91.151(a);

14 C.F.R. 91.203(a) & (b);

14 C.F.R. 91.405(a);

14 C.F.R. 91.407(a)(1);

14 C.F.R. 91.409(a)(2);

14 C.F.R. 91.417(a).