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

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

June 5, 2015

Exemption No. 11741
Regulatory Docket No. FAA–2015–0892

Mr. Trevor D. Witt
President
Witt Tech LLC
1648 S Ohio Street #117
Salina, KS 67401

Dear Mr. Witt:

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 March 31, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Witt Tech LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct remote sensing with a focus in mapping, real estate, insurance evaluations, and industrial inspection.

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 3D Robotics IRIS+.

In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation

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

The Basis for Our Decision

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

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

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

Our Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, Witt Tech 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 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, Witt Tech LLC is hereafter referred to as the operator.

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

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

1. Operations authorized by this grant of exemption are limited to the 3D Robotics IRIS+ 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 June 30, 2017, unless sooner superseded or rescinded.

Sincerely,

John S. Duncan
Director, Flight Standards Service

Enclosures

March 31, 2015

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, Witt Tech LLC, the operator of the 3D Robotics IRIS+ ("sUAS" or "IRIS+"), seeks an exemption from the Federal Aviation Regulations ("FARs") listed below and discussed in Appendix A.

The requested exemption would permit commercial operation of the 3D Robotics IRIS+, which weighs approximately 4 lbs. and is capable of capturing still imagery and video. Applications for this sUAS include remote sensing with a focus in mapping, real estate, insurance evaluations, and industrial inspection. Use of the IRIS+ for these purposes provides high quality data more safely and at a fraction of the cost of using conventional aircraft.

Operations under the exemption will be subject to strict operating requirements and conditions to ensure at least an equivalent level of safety to currently authorized operations using manned aircraft.

As described more fully below, the requested exemption would authorize commercial operations of remote sensing using the IRIS+, which at 4 lbs. is small in size. The IRIS+ will be operated under controlled conditions at low altitude in airspace that is limited in scope, as described more fully herein; it will have automated control features, as described below. The IRIS+ also will be operated by an individual who has at least a private pilot's certification with at least a third class medical and sUAS flight training. Finally, the airspace in which the sUAS will operate will be disclosed to the FAA in advance through the use of a COA and NOTAMs.

Witt Tech LLC respectfully submits that because this small unmanned aerial vehicle—the IRIS+—will be used in lieu of comparatively hazardous operations now conducted with fixed wing and rotary conventional aircraft, the FAA can have confidence that the operations will achieve at least an equivalent or greater level of safety. Approval of this

exemption would thereby enhance safety and fulfill the Secretary of Transportation's (the FAA Administrator's) responsibilities under Section 333(c) of the Reform Act to "establish requirements for the safe operation of such aircraft systems in the national airspace system."

The name and address of the applicant are:
Witt Tech LLC
Address: 1648 S Ohio St #117, Salina, KS 67401
Ph: 785-280-3529
Email: witttechuas@gmail.com

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

14 C.F.R. 61.113(a)&(b);
14 C.F.R. 91.7(a);
14 C.F.R. 91.119(c);
14 C.F.R. 91.121;
14 C.F.R. 91.151(a)(1);
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)&(b).

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

Witt Tech LLC submits that grant of this exemption application for use of the IRIS+ for remote sensing with a focus in mapping, real estate, insurance evaluations and industrial inspection will advance the Congressional mandate in Section 333 of the Reform Act to accelerate the introduction of UASs into the national airspace system ("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 or 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.

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 transitioning to UASs for remote sensing. Accordingly, the applicant respectfully requests that the FAA grant the requested exemption without delay.

The sUAS

The IRIS+ complies with the requirements set forth by Section 333 by its small size, weight, speed, and operational proximity to airports and densely populated areas. As a result under this exemption the IRIS+ is not deemed airworthy by an airworthiness certificate, but rather it is deemed airworthy by the operator conducting a thorough preflight of the aircraft. This aircraft will also be registered in accordance to 14 CFR Part 47, marked in accordance to 14 CFR Part 45 Subpart C, and accompanied by a letter of alternative marking due to the unconventional design of a quadcopter. Markings will be as large as practicable. This aircraft is of the same size, configuration, and operational capabilities of the aircraft granted in exemptions 11138, 11153, and 11157.

Aircraft Make and Model: 3D Robotics IRIS+
Configuration: Quad copter

Aircraft Performance/Specifications:

- Ground Control Station (GCS): The aircraft will be primarily controlled through the use of a typical 2.4 GHz RC transmitter. The aircraft can also be pre-programmed to conduct a mission through the use of a laptop or tablet via a 915 MHz telemetry link. Whenever operations are conducted in this matter, the RC Transmitter will be able to take control of the aircraft if the need arises.
- Video Downlink: 5.8 GHz at 200mW
- Lost Com: Aircraft will autonomously return to the launch location and safely land.
- Emergency Procedure: Should the need arise the aircraft can be commanded by a switch on the RC transmitter to safely land immediately or return and land at the launch location.
- Power Supply: 3S 5.1Ah 8C Lithium Polymer Battery
- Dimensions: 550mm motor to motor
- Maximum Speed: 44 knots
- Normal operating speed: Less than 30 knots
- Weight without payload: 1282g (2lb 13oz)
- Weight with payload: 1656g (3lb 10oz)

Aircraft manuals and operations checklist will be included as additional information to this petition for exemption.

Operator Requirements

To operate the sUAS under this exemption an operator will be required to have at least a private pilot's certification, at least a third class medical, and aircraft specific flight training as defined below.

Aircraft specific flight training to include:

25 hours as a UAS rotorcraft pilot including,
10 hours logged as a UAS pilot with a multi-rotor UAS,
5 hours with the specific make and model of the UAS, and
At least 3 take-offs and landings within the preceding 90 days

Mandatory Operating Conditions

Grant of the exemption to Witt Tech LLC will be subject to the following mandatory conditions for flight operations.

- Operations shall not occur over congested, actively, or densely populated areas as defined by the local FSDO.
- Permission from land owner is required before commencing any flight.
- Operations will only occur during Visual Flight Rules Meteorological Conditions (VMC).
- Operations will not occur 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 operator.
- The sUAS will remain clear of manned aircraft and yield right of way.
- A flight test will be conducted after any major repair or alteration.
- A preflight check will be conducted before each flight to assure airworthiness.
- Aircraft will remain within Visual Line of Sight (VLOS) of the operator.
- All operations will be conducted with a Visual Observer (VO).
- Operations will be limited to daylight hours.
- Operations will be concluded with no less than 25% battery power remaining.
- Operations will not exceed 400ft AGL.
- Operations will not occur within 5nm of any airport unless a letter of agreement with that airport's management is obtained.
- Operations will take place under a COA.
- Operator will file a NOTAM for each flight.
- All required permissions and permits will be obtained from territorial, state, county or city jurisdictions, including local law enforcement, fire, or other appropriate governmental agencies.
- All non-participants will keep 500ft away from operations unless there are adequate barriers to protect them.
- All operations will be conducted according to the manufacturer's manuals.

- All documents that will be kept at the GCS include but are not limited to; the aircraft manuals, maintenance logs, aircraft registration, grant of exemption, and COA.

Public Interest

Consistent with the requirements of 14 C.F.R. §11.81(d), Petitioner offers the following reasons why granting this petition for exemption is in the public interest, i.e., how granting it would benefit the public as a whole.

Approval of this exemption allowing commercial operations of sUAS in the mapping, real estate, insurance evaluation, and industrial inspection industries benefits the public as a whole in the following ways:

- It helps fulfill Congress' goal in passing Section 333(a) through (c) of the Reform Act, namely, the FAA Administrator's assessment of whether certain UAS may operate safely in the National Airspace System before completion of the rulemaking required under Section 332 of the Reform Act.
- The operation significantly improves safety and reduces risk by alleviating human exposure to danger associated with current aerial remote sensing methods, namely, full size helicopters. Reducing human exposure to death or serious injury associated with manned aircraft performing these tasks furthers the public's interest.
- Petitioner's sUASs are battery powered and create no emissions. If Petitioner's sUAS crashes, there is no fuel to ignite and explode. Any impact of Petitioner's lightweight sUASs is far less than a full size manned aircraft. The public's interest is furthered by minimizing ecological impact of an accident and by reducing human exposure to potentially harmful emissions associated with manned aircraft.
- Remote sensing is as valuable tool for mapping, real estate, insurance evaluations, and industrial inspection. However, problems with safety, cost, statistical integrity, and logistics continue to impede remote sensing from conventional manned aircraft. The use of sUAS addresses these problems and is a powerful tool for performing a wide-range of remote sensing applications. The public as a whole will benefit from the safer and more cost-effective remote sensing services that sUAS operations provide.

Privacy

All flights will occur over property with the landowner's prior consent.

Conclusion

Witt Tech LLC seeks an exemption from the FARs set forth above and in Appendix A to allow commercial operations of a sUAS conducting remote sensing with a focus in agriculture, real estate, insurance evaluations and industrial inspection.

Approval of this exemption allowing commercial operations of the IRIS+ for remote sensing will enhance safety by reducing risk. Conventional remote sensing operations, using turbine or piston-powered aircraft present risks associated with vehicles that can weigh 5,000 to 7,000 lbs., or more, carry large quantities of fuel, passengers, and, in some cases, cargo. In contrast, an IRIS+ weighing less than 4 lbs. and powered by batteries eliminates a portion of that risk given the reduced mass and lack of combustible fuel carried on board. The IRIS+ will carry no passengers or crew and, therefore, will not expose any individuals to the risks associated with manned aircraft flights.

Additionally, no national security issue is raised by the grant of the requested exemptions due to all pilots being certified through the FAA.

The operation of the IRIS+, weighing less than 4 lbs., for remote sensing in accordance with the strict conditions outlined above, will provide an equivalent level of safety supporting the grant of the exemptions requested herein.

The IRIS+'s satisfaction of the criteria set forth in Section 333 of the Reform Act—size, weight, speed, operating capabilities, lack of proximity to airports and populated areas, operation within visual line of sight, and national security—and its showing of an equivalent level of safety provides more than adequate justification for the grant of the requested exemptions allowing commercial operation of the IRIS+ in the remote sensing business.

Best Regards,

Trevor D Witt
President, Witt Tech LLC

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

Witt Tech LLC requests an exemption from the following regulations, all of which have been granted by every approved Section 333 exemption at the time of this submission.

14 C.F.R. § 61.113 Private pilot privileges and limitations: Pilot in command.

The regulation provides that no person that holds a private pilot certificate may act as pilot in command of an aircraft for compensation or hire. Subparagraph (b) allows a private pilot to act as pilot in command of an aircraft in connection with any business or employment if: (1) The flight is only incidental to that business or employment; and (2) The aircraft does not carry passengers or property for compensation or hire.

Equivalent Level of Safety

Currently, there are no applicable areas identified for sUAS in either the private or commercial sector and therefore an exemption is required to conduct commercial operations. As flight operations will be conducted in a restricted environment as described in the operations section, these strict guidelines will achieve an equivalent level of safety for each individual flight especially when compared to commercial flights identified in Part 61 when originally developed.

14 C.F.R. § 91.7(a): Civil Aircraft Airworthiness

Petitioner seeks an exemption from 14 C.F.R. § 91.7(a), which requires that a civil aircraft be in airworthy condition to be operated. Inasmuch there will be no airworthiness certificate issued for the sUAS, should this exemption be granted, no FAA regulatory standard will exist for determining airworthiness.

Equivalent Level of Safety

Given the size of the IRIS+ and the preflight procedures including the review of maintenance logs and preflight check lists, an equivalent level of safety will be provided to assure the aircraft is in an airworthy condition.

14 C.F.R. § 91.119(c): Minimum Safe Altitudes

Petitioner requests an exemption from the minimum safe altitude requirements of 14 C.F.R. § 91.119(c) which states that aircraft may not operate closer than 500 feet above the surface and away from any person, vessel, vehicle, or structure in non-congested areas.

To provide the intended operations, the sUAS is operated below 400 feet AGL.

Equivalent Level of Safety

Compared to flight operations with rotorcraft weighing far more than the 4 pounds proposed herein, and given the lack of flammable fuel, any risk associated with these operations is far less than those that presently exist with conventional aircraft. An equivalent level of safety will be achieved given the size, weight, and speed of the UAS, as well as the location where it is operated. As set forth in the operations section of this exemption, the sUAS will be operated away from densely populated areas and at least 5nm away from airports (unless a letter of agreement from the airport's management is obtained), where buildings and people will not be exposed to operations without their pre-obtained consent. Because of the advance notice to the property owners and participants, all affected individuals will be well aware of the planned flight operations.

14 C.F.R. § 91.121: Altimeter Settings

This petition seeks an exemption from 14 C.F.R. § 91.121, which requires a person operating an aircraft to maintain cruising altitude or flight level by reference to an altimeter that is set to the elevation of the departure airport or barometric pressure. An exemption is required because the sUAS does not have a barometric altimeter, but rather a GPS altitude read out.

Equivalent Level of Safety

An equivalent level of safety will be achieved by the operator confirming the altitude of the launch site shown on the GPS altitude indicator before flight. Moreover, the PIC will use the GPS altitude indicator to constantly monitor the sUAS's height, thus ensuring operation at safe altitudes.

14 C.F.R. § 91.151(a)(1): Fuel Requirements for Flight in VFR Conditions

Petitioner requests an exemption from 14 C.F.R. § 91.151(a)(1)'s fuel requirements for flight in VFR conditions during the day. Section 91.151(a)(1) states:
(a) No person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed –
(1) During the day, to fly after that for at least 30 minutes;

Here, the battery powering the IRIS+ provides approximately 16 minutes of flight. To meet the 30 minutes reserve requirement in 14 C.F.R. § 91.151, sUAS flights could not be conducted. Given the limitations on the sUAS's proposed flight area and the location of its proposed operations within a predetermined area, a safety margin based on a reserve amount of battery life is needed.

Equivalent Level of Safety

An equivalent level of safety will be achieved because the operations will be conducted on-site without significant transit time by the sUAS. All flights will be planned to be terminated with no less than 25% reserve battery power still available. This restriction would be more than adequate to return the sUAS safely to the ground and its planned landing zone from anywhere in its limited operating area even in the event of an unexpected occurrence. Operation of the sUAS with less than 30 minutes of reserve fuel does not include the type of risks that Section 91.151(a)(1) was intended to alleviate given the size and speed of the small UAS, and the proximity of the flight operation to the landing zone.

14 C.F.R. § 91.405(a), 91.407(a)(1), 91.409(a)(2); 91.417(a) and (b): Maintenance Inspections

Petitioner also seeks an exemption from the maintenance inspection requirements contained in 14 C.F.R. § 91.405(a), 91.407(a)(1), 91.409(a)(2); 91.417(a) and (b). These regulations specify maintenance and inspection standards in reference to 14 C.F.R. Part 43. See, e.g., 14 C.F.R. § 91.405(a) (stating that each owner or operator of an aircraft "[s]hall have the aircraft inspected as prescribed in subpart E of this part and shall between required inspections …have discrepancies repaired as prescribed in part 43 of this chapter"). An exemption to these regulations is needed because Part 43 and these sections only apply to aircraft with an airworthiness certificate, which the sUAS will not have.

Equivalent Level of Safety

An equivalent level of safety will be achieved because the operator will ensure that the sUAS is in working order prior to initiating flight by following the preflight checklist, perform required maintenance, and keep a log of any maintenance performed. The operator is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition.

APPENDIX B: SUMMARY OF WITT TECH LLC SECTION 333 EXEMPTION REQUEST

Witt Tech LLC hereby provides pursuant to Part 11 a summary of its exemption application to allow commercial operation of the IRIS+ unmanned aircraft in remote sensing. An exemption is requested from the following regulations:

14 C.F.R. 61.113(a)&(b);
14 C.F.R. 91.7(a);
14 C.F.R. 91.119(c);
14 C.F.R. 91.121;
14 C.F.R. 91.151(a)(1);
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)&(b).