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

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

September 25, 2015

Exemption No. 11646A
Regulatory Docket No. FAA–2015–0700

Mr. Cameron R. Cloar
Associate
Counsel for BioSensing Systems, LLC
One Embarcadero Center, 18th Floor
San Francisco, CA 94111

Dear Mr. Cloar:

This letter is to inform you that we have granted your petition for an amendment. It explains the basis for our decision, describes its effect, and lists any changes to the original conditions and limitations.

By letter dated July 2, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of BioSensing Systems, LLC (hereinafter petitioner or operator) for an amendment to your current exemption. That exemption from §§ 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) of Title 14, Code of Federal Regulations (14 CFR) allows the petitioner to operate a UAS to perform aerial data collection. You requested an amendment to add the DJI Matrice 100 and the 3D Robotics X8+.

In your petition, you indicate that there has been no change in the conditions and reasons relative to public interest and safety that were the basis for granting the original exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested amendment to the exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner. The unmanned aircraft authorized in the original grant are comparable in type, size, weight, speed and operating capabilities to those in this petition.

Airworthiness Certification

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, C*ertification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

Our Decision

The FAA has determined that the justification for the issuance of Exemption No. 11646 remains valid and is in the public interest. Therefore, under the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, the operator is granted an amendment to add new aircraft to its UAS operations.

The operator shall add this amendment to its original exemption.

Conditions and Limitations

All conditions and limitations within Grant of Exemption No. 11646 remain in effect except as follows. Condition No. 1 has been updated to reflect the additional aircraft.

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 Sensefly eBee, DJI Matrice 100, and 3D Robotics X8+ 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.

This exemption terminates on May 31, 2017, unless sooner superseded or rescinded.

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

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July 2, 2015

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

RE: Amendment to Exemption No. 11646 Issued Under Section 333 of the FAA Reform Act and Part 11, in Regulatory Docket No. FAA-2015-0700 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" or "Section 333"), Subsection (f) of 49 U.S.C. § 44701, and 14 C.F.R. Part 11, BioSensing Systems, LLC ("BioSensing Systems") seeks an amendment to Exemption No. 11646 to operate two additional small Unmanned Aircraft Systems: the DJI Matrice 100 ("Matrice 100"), and the 3D Robotics X8+ ("X8+"). On May 21, 2015, the FAA issued Exemption No. 11646 to BioSensing Systems to allow it to operate the Sensefly eBee sUAS for aerial imagery, inspection and data collection services. This requested amendment to that exemption will allow BioSensing Systems to operate the Matrice 100 and X8+ for the same reasons and under the same conditions. There has been no other change in conditions and reasons relative to public interest and safety that were the basis for granting the original exemption.

Additional sUAS Platforms – DJI Matrice 100 & the 3D Robotics X8+

Operations pursuant to 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 and under the same conditions as permitted by the FAA in Exemption No. 11646. The Matrice 100 weighs approximately 5.2 pounds and the X8+ weighs 7.3 pounds, including payload. Both models are powered electrically via small, lithium polymer batteries that drive electric propellers. The Matrice 100 and X8+ have extensive automated control features, redundant systems, and integrated fail-safes, and they will be operated under controlled conditions and at low altitudes in airspace that is limited in scope.

Exemptions Requested

BioSensing Systems respectfully requests exemptions from the following regulations previously granted by the FAA in Exemption No. 11646:[1]

14 C.F.R. § 91.7(a);
14 C.F.R. § 61.23(a);
14 C.F.R. § 61.113(a);
14 C.F.R. § 61.101(e)(4);
14 C.F.R. § 61.315(a);
14 C.F.R. § 91.119(c);
14 C.F.R. § 91.121;
14 C.F.R. § 91.151;
14 C.F.R. § 91.405(a);
14 C.F.R. § 91.407(a)(1);
14 C.F.R. § 91.409(a)(1)-(2); and
14 C.F.R. § 91.417(a).

Airworthiness of the Matrice 100 and the X8+

Both the Matrice 100 and the X8+ are airworthy and compliant with a significant level of safety. In fact, the many previous 333 Grants of Exemptions by the FAA for operations of the X8+, and similarly designed DJI platforms, underscore that operations of the Matrice 100 and X8+ by BioSensing Systems will not adversely affect safety when compared to similar operations conducted by aircraft that have been issued an airworthiness certificate under 14 C.F.R. Part 21, Subpart H. [*E.g.*, FAA Exemption Nos. 11357 (granting exemption for the DJI Phantom 2 Vision +), 11325 (granting same for the DJI Phantom 2), 11626 (granting same for the X8+).]

To be sure, the Matrice 100 weighs a mere 5.2 pounds (approximately 2,400 grams) and is powered electrically by small, lithium polymer batteries that drive electric propellers. It operates at a cruising speed of no more than 22 meters per second. Similarly, the X8+ weighs only 7.3 pounds, including payload, and has a cruising speed of less than 15 mile per hour. Both platforms were designed with extensive automated control features, redundant systems, and integrated fail-safes which enhance safe takeoff, flight, and landing in many conditions. Further

[1] BioSensing Systems will operate under the same operating conditions as those required under the original grant of exemption (No. 11646), in which exemptions for certain FARs was deemed by the FAA as "not necessary." Accordingly, BioSensing Systems does not request FAA exemption from: 14 C.F.R. Part 21, Subpart H; 91.7(b); 91.9(b)(2); 91.113; 61.133(b); 61.133; 91.203; and 91.405(b). Should the FAA determine that relief from these or any other regulation is required for the operations proposed herein, BioSensing Systems will be happy to supplement this request for amendment and include justifications for those necessary additional exemptions.

details of these features are provided in the DJI Matrice 100 3D Robotics X8+ operating manuals.[2]

To maintain airworthiness, BioSensing Systems will follow the inspection and maintenance programs designed specifically for the Matrice 100 and X8+ by their manufacturers. Those programs are enhanced by inflight monitoring systems for the Matrice 100 and X8+ that monitor current position, wind speed and direction, battery charge, flight time, and altitude, including both above the takeoff location and above sea level. If onboard sensors detect a critical situation at any time (low battery, close proximity to the ground, weak data link signal, etc.) the aircraft will automatically initiate a preprogrammed safety procedure. In the event of any malfunction, the Matrice 100 and X8+ will undergo all maintenance required by the manufacturers and undergo flight testing before recommencing commercial operations.

Good cause exists to grant BioSensing Systems an amendment to Exemption No. 11646. Doing so, is in the public interest based on the clear direction in Section 333, the Federal Aviation Act, the high and equivalent level of safety of the proposed operations, and in consideration of the size, weight, speed and limited operating area associated with the Matrice 100 and the X8+. Accordingly, BioSensing Systems respectfully requests that the FAA grant an expedited amendment to add the Matrice 100 and X8+ to its sUAS operations.

Very truly yours,
NIXON PEABODY, LLP

Cameron R Cloar

CRC

[2] BioSensing Systems submits the following documents, as proprietary and under confidentiality, in support of this request for amendment to Exemption No. 11646: the DJI Matrice 100 User Manual, Version 1.0; the DJI Matrice 100 In the Box; the DJI Matrice 100 Disclaimer and Safety Guidelines, Version 1.0; the DJI Matrice 100 Intelligent Flight Battery Safety Guidelines, Version 1.0; 3D Robotics Drone Safety; 3D Robotics Troubleshooting Guide; 3D Robotics X8+ Flight Checklist; 3D Robotics X8+ Failsafe Configuration; 3D Robotics Flight Safety; and, 3D Robotics X8+ Operation Manual. At the request of the FAA, BioSensing Systems will also be pleased to provide, under confidentiality, its General Operations Manual.