ESPOSITO PARTNERS

275 Madison Avenue
14th Floor
New York, NY 10016
(212) 537-3896

128 Main Street
Cold Spring Harbor
New York, 11724
(888) 533-9995

June 16, 2014

VIA FDMS AND OVERNIGHT COURIER

United States Department of Transportation
Docket Management System
1200 New Jersey Ave., SE
West Building Ground Floor Room W12-140
Washington, DC 20590

Re: Exemption Request Pursuant To Section 333 of the FAA Reform Act of 2012

Dear Sir or Madam:

We represent AeroCine, LLC, a New York Limited Liability Company doing business as AeroCine ("**AeroCine**"). We are writing pursuant to the FAA Modernization and Reform Act of 2012[1] (the "Reform Act") and the procedures contained in 14 C.F.R. 11, to request that AeroCine, an owner and operator of small unmanned aircraft, be exempted from the Federal Aviation Regulations ("FARs") listed below so that AeroCine may operate its small unmanned aircraft / lightweight unmanned aircraft systems ("UAS") commercially in airspace regulated by the Federal Aviation Administration ("FAA").

As described herein, AeroCine is the leader in capturing high definition feature film quality aerial cinematography with small, unmanned aircraft and lightweight UASs. It is the only company that has publicly shown its ability to carry feature film quality camera systems, like the Arri Alexa, on a stable UAS platform. AeroCine has equipped each of its small unmanned aircraft for aerial photography and cinematography, primarily for use in the motion picture industry, though given their stability and maneuverability, they may be used for other cinematography, by law enforcement personnel and by other first responders. AeroCine's UASs are the most advanced remote control aircraft being used for these purposes and they are already highly regarded by noteworthy experts in the field of unmanned rotorcraft, as well as feature film directors.

Founded by three innovative film school graduates from New York University's Tisch School of the Arts, AeroCine has been operating its lightweight UASs outside the United States on cinematic productions without incident. For example, AeroCine has obtained research driven footage of the Chernobyl nuclear reactor site in Russia, culturally important footage of locations within Dubai, Sweden and Slovenia, and is in discussions to acquire feature film footage in such countries as Egypt and Mexico. Based primarily in New York City, with operations in Los Angeles, AeroCine would now like permission to fly its UASs commercially in the United States to capture aerial cinematography, conduct research on UAS safety protocols and to develop an enhanced platform for first responder use.

[1] 112 P.L. 95 (2012).

To date, AeroCine has rejected all offers to work with feature film directors on locations within the United States, to ensure it is in compliance with any applicable FARs. It has done so despite Judge Patrick G. Geraghty's decision in the Raphael Pirker matter and his reasoning that no FARs prohibit the use of small unmanned aircraft or lightweight UASs like those flown by AeroCine.

AeroCine's exemption request would permit its operation of lightweight, unmanned (piloted by remote control) and comparatively inexpensive UASs in tightly controlled and limited airspace. Predetermined, specifically marked areas of operation, cordoned off locations and corresponding enhancements to current safety controls will allow AeroCine to operate within current safety parameters while innovating new ones. Currently, similar lightweight, remote controlled UASs are legally operated by amateurs with no flight experience, safety plan or controls in place to prevent catastrophe. It is only logical to allow AeroCine's experienced remote control pilots, technicians and safety crew to operate similar lightweight UASs. This will act to further safety protocols specific to lightweight UASs as AeroCine researches flight data and other information gained through permitted flight operations.

Granting AeroCine's request comports with the Secretary of Transportation's (FAA Administrator's) responsibilities to not only integrate UASs into the national airspace system, but to "…establish requirements for the safe operation of such aircraft systems [UASs] in the national airspace system" under Section 333(c) of the Reform Act. Further, AeroCine will conduct its operations in compliance with the protocols described herein or as otherwise established by the FAA.

For the reasons stated below, AeroCine respectfully requests the grant of an exemption allowing it to operate lightweight, remote controlled UAS's.

1. AeroCine's Contact Information:

AeroCine, LLC d/b/a AeroCine
c/o Esposito Partners
275 Madison Avenue, 14th Floor
New York, NY 10016
Tel.: (212) 537-3896
E-Mail: fesposito@eplawllc.com

2. The Specific Sections of Title 14 of the Code of Federal Regulations From Which AeroCine Requests Exemption are:

14 CFR 21;
14 C.F.R. 45.23(b);
14 CFR 61.113 (a) & (b);
14 C.F.R. 91, et seq.;
14 CFR 407 (a) (1);
14 CFR 409 (a) (2); and,
14 CFR 417 (a) & (b).

3. The Extent of Relief AeroCine Seeks and the Reason It Seeks Such Relief: [2]

AeroCine submits this application in accordance with the Reform Act, 112 P.L. 95 §§ 331-334, seeking relief from any currently applicable FARs operating to prevent AeroCine's contemplated commercial cinematic, research and other flight operations within the national airspace system. The Reform Act in Section 332 provides for such integration of civil unmanned aircraft systems into our national airspace system as it is in the public's interest to do so. AeroCine's lightweight UASs meet the definition of "small unmanned aircraft" as defined in Section 331 and therefore the integration of AeroCine's lightweight UASs are expressly contemplated by the Reform Act. AeroCine would like to operate its lightweight UASs prior to the time period by which the Reform Act requires the FAA to promulgate rules governing such craft.

The Reform Act guides the Secretary in determining the types of UASs that may operate safely in our national airspace system. Considerations include:

- The weight, size, speed and overall capabilities of the UAS;
- Whether the UAS will be operated near airports or populated areas; and,
- Whether the UAS will be operated by line of sight.

112 P.L. 95 § 333 (a). Each of these items militates in favor of an exemption for AeroCine.

AeroCine's UASs utilize twelve counter-rotating propellers for extreme balance, control and stability. They each weigh less than 55 pounds, including cinematic or other equipment. Each of AeroCine's small unmanned aircraft are designed to primarily hover in place and operate at less than a 50 knot maximum speed. They are capable of vertical and horizontal operations but operate only within the line of sight of the remote control pilot. In addition to the remote control pilot, AeroCine uses a spotter and a technician, such that, at minimum, three AeroCine personnel govern the safe flight of an AeroCine aircraft at all times.

Utilizing battery power and not combustible fuels, flights generally last between five and twenty minutes. AeroCine does not operate its UASs with less than twenty five percent battery capacity. Safety systems in place include a GPS mode that allows AeroCine's UASs to hover in place if communication with the radio control pilot is lost and then slowly descend the UAS at twenty five percent battery capacity. Further, AeroCine's fleet is programmed, in some instances, to slowly follow a predetermined set of waypoints to return to a safety point if communications are lost.

AeroCine does not operate its UASs near airports and generally does not operate them near populated areas. To date, AeroCine has only operated its fleet on private sets, cordoned off areas and areas under the control of AeroCine clients. AeroCine only operates its UASs in predetermined areas and only in compliance with well regarded safety protocols such as those contained within the well established and commonly known Motion Picture and Television Operations Manual.

AeroCine's operation of its fleet of small unmanned aircraft will not "create a hazard to users of the national airspace system or the public." 112 P.L. 95 § 333 (b). Given the small size and weight of AeroCine's UASs, combined with their operation in cordoned off and well-controlled areas, AeroCine's fleet falls within Congress's contemplated safety zone when it promulgated the Reform Act and the corresponding directive to integrate UASs into the national airspace system. Indeed, AeroCine's UASs have a demonstrable safety record and do not pose any threat to the general public or national security.

[2] The FAA has the authority to issue the exemption sought by AeroCine pursuant to the Federal Aviation Act, 85 P.L. 726 (1958), as amended (the "Act").

4. How AeroCine's Request Will Benefit the Public As A Whole:

Granting AeroCine's exemption request furthers the public interest. First, Congress has already pronounced that it is in the public's interest to integrate commercially flown UASs into the national airspace system, hence the passing of the Reform Act. Second, AeroCine conducts research into safe UAS operations every time it flies one of its UASs. Flight data, visual inspections, recorded observations and flight analyses are compiled to further enhance current safety protocols. Allowing AeroCine to log more flight time directly relates to its research and its ability to further enhance current safety measures. Third, the public has an interest in reducing the danger and emission associated with current aerial cinematic capture methods, namely, full size helicopters. AeroCine's UASs are battery powered and create no emissions. If an AeroCine UAS crashes there is no fuel to ignite and explode. The impact of AeroCine's lightweight UASs is far less than a full size helicopter, notwithstanding the statistically noteworthy safety record of full size helicopters used in motion picture capture. The public's interest is furthered by minimizing ecological and crash impacts by permitting motion picture capture through AeroCine's lightweight UASs.

Progression of the arts and sciences has been fundamental to our society since its inclusion in the United States Constitution. Indeed, Congress mandated the integration of UASs into our national airspace system, in part, to achieve progression in this noteworthy, and inevitable, field. Permitting AeroCine to immediately fly within the United States furthers these goals. Whether it is the amalgam of scientific discoveries applicable to feature film making (including those drawing upon architecture, physics, engineering and cultural inclusiveness) to advancements in publicly usable technologies or advancements in equipment available to law enforcement personnel / first responders that does not cost millions of dollars, granting AeroCine's exemption request substantially furthers the public's interest in ways known and currently unknown.

5. Reasons Why AeroCine's Exemption Will Not Adversely Affect Safety Or How The Exemption Will Provide a Level of Safety At Least Equal To Existing Rule:

AeroCine's exemption will not adversely affect safety. Quite the contrary, for the reasons stated, *supra*, permitting AeroCine to log more flight time in FAA controlled airspace will allow AeroCine to innovate and implement new and novel, as of yet undiscovered safety protocols. In addition, AeroCine submits the following representations of enhancements to current aerial motion picture capture techniques:

- AeroCine's UASs weigh less than 55 pounds complete with feature length motion picture quality cameras like the Arri Alexa;
- AeroCine only operates its UASs below 400 feet;
- AeroCine's UASs only operate for 5-20 minutes per flight;
- AeroCine lands its UASs when they reach 25% battery power;
- AeroCine's remote control pilots operate AeroCine's UASs by line of sight;
- AeroCine's remote control pilots have video backup should they somehow lose sight of the UAS;
- AeroCine staffs each flight with a remote control pilot, technician and spotter with communication systems enabling real time communication between them;
- AeroCine's UASs have GPS flight modes whereby they hover and then slowly land if

communication with the remote control pilot is lost or battery power is below 25%;

- AeroCine actively analyses electronic flight data and other sources of information to constantly update and enhance safety protocols;
- AeroCine employs FAA licensed helicopter pilot(s) and conducts a regimented training program;
- AeroCine only operates in quarantined areas that are strictly controlled, are away from airports and populated areas;
- AeroCine conducts extensive briefings prior to flight, during which safety carries primary importance;
- AeroCine always obtains all necessary permissions and permits prior to operation; and,
- AeroCine has procedures in place to abort flights in the event of safety breaches or potential danger.

AeroCine's safety protocols provide a level of safety at least equal to existing rules, and in nearly every instance, greater than existing rules. It is important to note that absent the integration of commercial UASs into our national airspace system, helicopters are the primary means of aerial motion picture capture. While the safety record of such helicopters is remarkably astounding, it is far safer to operate a battery powered lightweight UAS. First, the potential loss of life is diminished because UASs carry no people on board and AeroCine only operates them in specific areas away from mass populations. Second, there is no fuel on board a UAS and thus the potential for fire or explosions is greatly diminished. Third, the small size and extreme maneuverability of AeroCine's UASs allow our remote control pilots to avoid hazards. Lastly, given their small size and weight, even when close enough to capture amazing images, AeroCine's UASs need not be so close to the objects they are focused on. Accordingly, AeroCine's UASs have operated and will continue to operate at and above current safety levels.

6. A Summary The FAA May Publish in the Federal Register:

A. 14 C.F.R. 21 and 14 C.F.R. 91: Airworthiness Certificates, Manuals and The Like.

14 C.F.R. 21, Subpart H, entitled Airworthiness Certificates, sets forth requirements for procurement of necessary airworthiness certificates in relation to FAR § 91.203(a)(1). The size, weight and enclosed operational area of AeroCine's UASs permits exemption from Part 21 because AeroCine's UASs meet an equivalent level of safety pursuant to Section 333 of the Reform Act. The FAA is authorized to exempt aircraft from the airworthiness certificate requirement under both the Act (49 U.S.C. § 44701 (f)) and Section 333 of the Reform Act. Both pieces of legislation permit the FAA to exempt UASs from the airworthiness certificate requirement in consideration of the weight, size, speed, maneuverability and proximity to areas such as airports and dense populations. AeroCine's UASs meet or exceed each of the elements.

14 C.F.R. 91.7(a) prohibits the operation of an aircraft without an airworthiness certificate. As no such certificate will be applicable in the form contemplated by the FARs, this Regulation is inapplicable.

14 C.F.R. § 91.9 (b) (2) requires an aircraft flight manual in the aircraft. As there are no pilots or passengers, and given the size of the UASs, this Regulation is inapplicable. An equivalent level of safety will be achieved by maintaining a manual at the flight operations center. The FAA has previously issued exemptions to this regulation in Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167,

10167A, 10602, 10700 and 32827.

14 C.F.R. § 91.121 regarding altimeter settings is inapplicable insofar as AeroCine's UASs utilize electronic global positioning systems and six internal gyroscopes to provide spatial coordination.

14 C.F.R. § 91.203 (a) and (b) provides for the carrying of civil aircraft certifications and registrations. They are inapplicable for the same reasons described above. The equivalent level of safety will be achieved by maintaining such certifications and registrations at the AeroCine's flight operations center.

B. 14 C.F.R. § 45.23: Marking of The Aircraft.

Applicable Codes of Federal Regulation require aircraft to be marked according to certain specifications. AeroCine's UASs are, by definition, unmanned. They therefore do not have a cabin, cockpit or pilot station on which to mark certain words or phrases. Further, two-inch lettering is difficult to place on such small aircraft. Regardless, AeroCine will mark its UASs in the largest possible lettering by placing the word "EXPERIMENTAL" on its fuselage as required by 14 C.F.R. §45.29 (f) so that the the pilot, technician, spotter and others working with the UAV will see the markings. The FAA has previously issued exemptions to this regulation through Exemptions Nos. 8738, 10167, 10167A and 10700.

C. 14 C.F.R. § 61.113: Private Pilot Privileges and Limitations: PIC.

Pursuant to 14 C.F.R. §§ 61.113 (a) & (b), private pilots are limited to non-commercial operations. AeroCine can achieve an equivalent level of safety as achieved by current Regulations because AeroCine's UASs do not carry any pilots or passengers. Further, while helpful, a pilot license will not ensure remote control piloting skills, though AeroCine's pilot vetting and training programs will. Further, private pilot licensees will operate AeroCine's UASs with the same skill. Further, the risks attendant to the operation of AeroCine's UASs is far less than the risk levels inherent in the commercial activities outlined in 14 C.F.R. § 61, et seq. Thus, allowing AeroCine to operate its UASs with a private pilot as the pilot in control will exceed current safety levels in relation to 14 C.F.R. §61.113 (a) & (b).

D. 14 C.F.R. 91.119: Minimum Safe Altitudes.

14 C.F.R. § 91.119 prescribes safe altitudes for the operation of civil aircraft. It allows helicopters to be operated at lower altitudes in certain conditions. AeroCine's UASs will never operate at an altitude greater than 400 AGL. AeroCine will, however, operate its UASs in cordoned off areas with security perimeters, providing a level of safety at least equivalent to those in relation to minimum safe altitudes. Given the size, weight, maneuverability and speed of AeroCine's UASs, an equivalent level of safety will be achieved.

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

The above-cited Regulations require, amongst other things, aircraft owners and operators to "have [the] 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. . . ."

These Regulations only apply to aircraft with an airworthiness certificate. They will not, therefore, apply to AeroCine should its requested exemption be granted. AeroCine conducts an extensive

maintenance program that involves regular software updates and curative measures for any damaged hardware. Therefore, an equivalent level of safety will be achieved. This is particularly true insofar as AeroCine has researched and developed its own designs.

F. Summary

AeroCine seeks an exemption from the following Regulations: 14 C.F.R. 21, subpart H; 14 C.F.R. 45.23(b); 14 C.F.R. §§ 61.113 (a) & (b); 14 C.F.R. § 91.7 (a); 14 C.F.R. § 91.9 (b)(2); 14 C.F.R. § 91.103(b); 14 C.F.R. § 91.109; 14 C.F.R. § 91.119; 14 C.F.R. § 91.121; 14 C.F.R. § 91.151(a); 14 C.F.R. §§ 91.203(a) and (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. § 91.409 (a)(2); and, 14 C.F.R. §§ 91.417 (a) & (b) to commercially operate its fleet of small unmanned vehicles and lightweight unmanned aircraft vehicles in motion picture or television operations, to conduct its own research and to develop economic platforms for law enforcement / first responders.

Granting AeroCine's request for exemption will reduce current risk levels and thereby enhance safety. Currently, motion picture image capture relies primarily on the use of larger aircraft running on combustible fuel. AeroCine's craft do not contain potentially explosive fuel, are smaller, lighter and more maneuverable than conventional motion picture aircraft. Further, AeroCine operates at lower altitudes and in controlled airspace. AeroCine has been analyzing flight data and other information in compiling novel safety protocols and the implementation of a flight operations manual that exceeds currently accepted means and methods of safe flight.

There are no people on board AeroCine's UASs and therefore the likelihood of death or serious bodily injury is significantly limited. AeroCine's operation of its UASs, weighting less than 55 pounds and travelling at speeds lower than 50 knots in cordoned off areas will provide at least an equivalent level of safety as that achieved under current FARs.

Accordingly, AeroCine respectfully requests that the FAA grant its exemption request without delay.

Respectfully submitted,

Frank M. Esposito, Esq.

Esposito Partners, PLLC
275 Madison Avenue
14th Floor
New York, NY 10016

Counsel for AeroCine

cc (via e-mail): Brian Streem
Managing Member
AeroCine

Jason Goodman
Chief Executive Officer
AeroCine

Jeffrey Brink
Director of Flight Operations
AeroCine