

Before the Federal Aviation Administration  
United States Department of Transportation

Clarification of the Applicability of Aircraft Registration Requirements  
for Unmanned Aircraft Systems (UAS) and Request for Information  
Regarding Electronic Registration for UAS

Docket Number FAA-2015-4378  
80 Fed.Reg. 63912 (Oct. 22, 2015).

**Comments by Modovolate Aviation, LLC**

Comments submitted electronically via Federal eRulemaking Portal,  
<http://www.regulations.gov>

**Introduction and summary**

This comment urges the FAA to implement its proposal to require registration of all small unmanned aircraft systems (“sUAS” or “microdrones”) and to do it through a simple Web-based application process. The Web interface and the database behind it should be implemented immediately, so that current owners and new purchasers of microdrones can register them now, while the FAA works to implement a longer-term registration process that requires microdrone vendors to register the vehicles at the point of sale.

The comment begins by explaining the interests that motivate and qualify the commenter. Then it summarizes the proposal, discusses the considerations that should determine the answers to the specific questions posed in the Federal Register notice, and provides brief answers to the questions.

**Interests of the commenter**

Modovolate Aviation, LLC, [hereinafter the “LLC” or “Movo Aviation”] is an Illinois limited liability company organized for the purpose of conducting microdrone research,

experimentation, demonstration, education and commercial operations for aerial data collection.

Movo Aviation holds section 333 Exemption No. 12634, Regulatory Docket No. FAA-2015-1486, granted on 27 August 2015, and actively offers microdrone-based aerial video and photography services to television stations and other customers.

The LLC was formed and is jointly owned by Henry H. Perritt, Jr. and Eliot O. Sprague.

Henry H. Perritt, Jr., the Chief Executive Officer and General Counsel of Movo Aviation, is a law professor and former dean at Chicago-Kent College of Law, the law school of Illinois Institute of Technology. Holding a bachelor of science degree in aeronautics and astronautics from MIT, a master of science degree in management from MIT's Sloan School, and a juris doctor degree from Georgetown University Law Center, Mr. Perritt has written dozens of law review articles and several books on how the law should adapt to technological innovation. He also is an expert on the federal regulatory process, having written many articles on the subject, having served as an official in the federal wage and price control program, as a member of the White House Staff, and as Deputy Under Secretary of Labor. As a consultant to the Administrative Conference of the United States, he wrote reports on, among other things, the utility of negotiated rulemaking, in which affected interests and regulatory agencies collaborate in developing the content of new rules, and on the process for adjudicating civil penalties under the Federal Aviation Act. He is a commercial helicopter and private airplane pilot, and serves on the board of directors and as legal and regulatory compliance officer of AIR-ONE emergency response coalition, a non-profit group that flies military surplus helicopters to support law enforcement and other public safety agencies in northern Illinois and southern Wisconsin. In his private capacity as a member of the bar, he is actively representing a number of individuals and small businesses who have obtained or are seeking section 333 exemptions.

Eliot O. Sprague is Chief Operating Officer of Movo Aviation. He is a full-time news helicopter pilot, helicopter flight instructor, director of market development for a Chicago-area on-demand commercial helicopter operator, and a member of the board of directors of Midwest Helicopter Association. A graduate of Hillsboro Aero Academy, he is intimately familiar with commercial aviation and is knowledgeable about the threats that unregulated microdrone flight present to the safety of himself, his

coworkers, his passengers, and to persons and property on the ground. He holds commercial helicopter – instrument, commercial multi-engine airplane, flight instructor helicopter, and flight instructor – instrument helicopter ratings.

## **The proposal**

On 22 October 2015, the FAA published a notice in the Federal Register, "Clarification of the Applicability of Aircraft Registration Requirements for Unmanned Aircraft Systems (UAS) and Request for Information Regarding Electronic Registration for UAS," Docket Number FAA-2015-4378 [hereinafter "Federal Register Notice" or the "Notice"].

The Notice recognizes that drones hold enormous promise for the aviation industry and for the economy generally. It also notes, however, that the risk of unsafe operations increases in proportion to the number of drones in use. Already, the FAA has received reports of hundreds of drone sightings by pilots of manned aircraft, many of which report unsafe and irresponsible operation. The agency recognizes that the ultimate goal is to create a culture of accountability and responsibility among all drone operators. It recognizes that any system of accountability must provide a means for identifying each drone and tracking it to its operator.

Accordingly, the Notice proposes to require the registration of all drones to enforce personal accountability. The Notice recognizes that the current paper-based system is too burdensome for microdrones, and that it must be replaced by a streamlined, electronic-based system for small UAS.

The Notice solicits comment on the proposed registration system, including comments on ten specific questions.

## **Comments on the proposal**

Movo Aviation supports the FAA's proposal to require registration of all unmanned aircraft systems except, perhaps, the smallest toys. As the FAA noted in its Federal Register Notice, a registration database will materially improve the ability for state and local law-enforcement and the FAA itself to investigate unsafe and reckless practices and to take enforcement action when appropriate.

## **The current system encourages noncompliance**

The most significant danger to the national airspace system is not commercial operations under the restrictions of the section 333 exemptions or under its proposed general rule if it becomes final with content similar to the FAA's 25 February 2015 proposal. Nor does it seem that flights by model aircraft hobbyists present unacceptable risks when they are actively participating in model aircraft club activities. Rather, the significant risks arise from casual hobbyists who have bought inexpensive drones and are flying them, or from commercial operators flying drones in ignorance of FAA rules or in willful disregard of them.

Willful disregard of FAA limitations is growing, because it is far too much trouble to obtain section 333 exemptions and to register drones under the existing procedures. This growing pattern of lawlessness undermines the "culture of accountability and responsibility" the agency seeks.

The FAA needs a regulatory approach that matches, not only the relatively modest risk proposed by small UAS, but also the low cost and relative disposability of the vehicles. Most drone operators have relatively little at stake, and therefore are unwilling to shoulder much cost to comply.

While the present system for obtaining authorization under section 333 is far better than the status quo before the exemption process was inaugurated, it remains cumbersome. Few sUAS owners are unable to navigate, on their own, the complex process necessary to obtain an exemption and to register their vehicles. Legal fees for attorney assistance in the process range from about \$1,000 at the very low-end to tens of thousands of dollars. Few exemptions are acted upon in fewer than two months, and many have been stuck in the process for much longer without any communication to the petitioner by the FAA.

Given that the content of the 1,937 exemptions and their associated COAs is virtually identical, it is not clear why that length of time is necessary. Even if it is necessary, it represents a significant barrier to compliance by the average small business who wants to operate drones legally.

The process for registering an sUAS makes even less sense, although it does not take as long. To insist on completion of a paper form that must be obtained by mail or in person from the FAA is a complete anachronism, given the stakes involved. Requiring

the separate preparation and submission of an affidavit of ownership and representations of LLC or corporation status is way more cumbersome than any risk-based analysis warrants. To someone who has just bought \$100,000 manned aircraft, the registration burdens of the registration process are trivial. They are not trivial if one just bought \$1,000 sUAS and had it delivered overnight.

The current system undermines the FAA's stated commitment to "ensur[e] that the U.S. continues to lead the world in the development and implementation of aviation technology . . . ." The current system strangles "the creativity, innovation and exploration that will drive this industry forward in the years and decades ahead," in the words of the Notice.

### **The new registration system must be simple**

The most essential feature of any new registration process is that it be simple. The FAA knows how to organize Web-based applications; it does it for tail number reservation, and it does it for airman-rating applications through the IACRA process. A similar system should be at the heart of any new registration requirement. It should, however, be more like the tail number registration system than IACRA, which is counterintuitive and hard to use in many respects.

### **Vendors should be responsible for registration, but registration should be required immediately**

Ultimately, drone vendors should be responsible for sUAS registration at the point of sale. Two years ago, before the FAA released its general NPRM for sUAS, Movo Aviation submitted a petition for rulemaking. Modovolate Aviation, LLC, Petition for Rulemaking to Limit Microdrones, Docket Number FAA-2014-0473 (July 9, 2014), posted July 10, 2014). In that petition, we argued that small drones are essentially consumer products, and they should be regulated as such by focusing on their safety features as delivered at the point of sale.

Every student of regulation knows that regulation is more effective when it focuses on bottlenecks rather than a large number of individuals or small entities ultimately to be regulated. Just as a drone vendor can be prohibited from selling a small drone without certain built-in safety systems that cannot be defeated by the operator, so also can drone vendors be responsible for the registration process.

This is the only way to ensure that all new ready-to-fly drones are registered; otherwise, a purchaser can buy one and simply fail to register it. The ultimate rule must take into account the fact that the distribution system for small drones is more complex than a simple manufacturer-to-customer transaction; many intermediaries such as storefront dealers and online vendors participate in the distribution chain.

But time is of the essence. The FAA will not achieve its goals by engaging in another protracted rulemaking process that takes two years. The FAA should set up a simple database and registration interface immediately and issue an emergency rule requiring compliance. The agency has authority to issue rules without allowing for public comment on the text of the rule under the Administrative Procedure Act, 5 U.S.C. § 553(b)(3)(B) (allowing an agency to bypass the notice and comment process "when the agency for good cause finds . . . that notice and public procedure thereon are impracticable, unnecessary, or contrary to the public interest"), and under its own rules. 14 C.F.R. § 11.29(a) (allowing for issuance of a final rule without first requesting public comment if "[an] NPRM is impracticable, unnecessary, or contrary to the public interest," or "in response to a safety emergency"). The FAA itself claims that the growing number of pilot reports of drone sightings reveals an imminent problem. The emergency rule can be accompanied by an invitation to comment on more detailed requirements for mandatory vendor registration in conjunction with sale.

### **Security of the new system is of limited concern**

The system also must not have unduly cumbersome security features. Whenever a government agency considers allowing Web-based interaction, concerns arise about cybersecurity. Security of any online system is important, but security measures always must be proportionate to the risk. Otherwise the potential benefits of technology are lost. Sound analysis of cybersecurity risks must begin with careful assessment of (A) the harm that could be done by a breach and (B) the motivation to corrupt the system both. Both are *de-minimis* when it comes to registration of sUAS.

The worst that can happen, if someone forges an application, is that a particular vehicle could not be traced to its owner or operator through the system. Other means for identifying the operator would remain. In any event, prompt deployment of a new, simple, registration system would be a significant improvement over the status quo, and a system with relatively modest security features can be operational much more quickly than one with unnecessarily elaborate security procedures.

The motivation for corrupting any registration system is also vanishingly small. If an operator is determined to do something inappropriate with a drone, he easily can find a way to avoid the registration system altogether. There is no reason for him to risk leaving a forensic cybertrail in order to lie about his identity.

### **True toys should be exempt from registration**

The registration requirement should exempt toys intended mainly to fly inside. A great many models of sUAS intuitively are toys, but they nevertheless have capabilities that make them a part of the problem. Many very small drones can fly several hundred feet above the ground, and many of them have cameras, which create a temptation for operators to fly them for commercial purposes or at least outside the envelope that otherwise would be associated with pure recreation.

Any registration system must be comprehensive. While some kind of size threshold may improve its efficiency and reduce its burdensomeness on the traditional toy community and its customers, protracted factual investigation to determine weight limits and other capabilities to define an exemption threshold is the enemy of prompt action.

One straightforward approach to a threshold is for the registration system to exempt any vehicle capable of being flown only inside. While users nevertheless may fly these toys outside, the characteristics that would lead to an inside-only restriction would limit what they could do outdoors.

### **Operators of currently registered drones should not be required to re-register**

The new registration process should not require microdrone owners and operators who already have registered their aircraft under the existing system and affixed tail numbers to them to take any action. Ultimately, if the FAA wishes, it could merge the registration data for microdrones now contained in its existing database with the new database.

### **Answers to specific questions**

1. *What methods are available for identifying individual products? Does every UAS sold have an individual serial number? Is there another method for identifying individual products sold without serial numbers or those built from kits?* Most UAS outside the smallest toy category have individual serial numbers. For those that do not, it

would impose a relatively small burden on manufacturers to imprint a serial number as part of the manufacturing process.

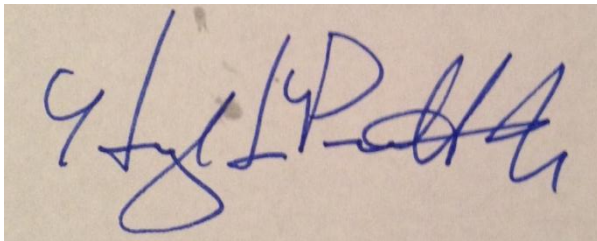
2. *At what point should registration occur (e.g. point-of-sale or prior-to-operation)? How should transfers of ownership be addressed in registration?* The ultimate registration system should impose the duty to register on the seller at the point of sale. A transfer of ownership requirement would be burdensome and unenforceable. If unauthorized or unsafe operation is traced to the original buyer, the buyer would be burdened to document any transfer of ownership. Until a seller-registration rule can be adopted, the FAA should immediately implement a registration system that allows and requires operators or sellers to register drones online.
3. *If registration occurs at point-of-sale, who should be responsible for submission of the data? What burdens would be placed on vendors of UAS if DOT required registration to occur at point-of-sale? What are the advantages of a point-of-sale approach relative to a prior-to-operation approach?* The seller should be responsible for submitting the data. The burden on the seller would be no greater than the common practice of requiring buyers to submit credit card information to consummate a sale. A point-of-sale approach can be enforced effectively against sellers; a prior-to-flight registration requirement imposed on end users is unenforceable.
4. *Consistent with past practice of discretion, should certain UAS be excluded from registration based on performance capabilities or other characteristics that could be associated with safety risk, such as weight, speed, altitude operating limitations, duration of flight? If so, please submit information or data to help support the suggestions, and whether any other criteria should be considered.* Only those vehicles limited to inside flight should be exempted in the initial rule. Based on public comment, this exemption boundary might be replaced by weight and operating-capability criteria.
5. *How should a registration process be designed to minimize burdens and best protect innovation and encourage growth in the UAS industry?* It must be implemented on the Web and not impose burdensome and unnecessary security requirements.
6. *Should the registration be electronic or web-based? Are there existing tools that could support an electronic registration process?* Yes. The existing FAA system for reserving aircraft tail numbers can be adapted, or at least serve as a model.



7. *What type of information should be collected during the registration process to positively identify the aircraft owner and aircraft? Aircraft serial number, owner name, address, telephone number, and email address.*
8. *How should the registration data be stored? Who should have access to the registration data? How should the data be used?* The registration should be stored on an Internet accessible database. It should be available to any member of the public, just as current aircraft registration information is. No use restrictions should be imposed.
9. *Should a registration fee be collected and if so, how will the registration fee be collected if registration occurs at point-of-sale? Are there payment services that can be leveraged to assist (e.g. PayPal)?* A modest registration fee can be imposed to help cover the costs of the new system. The magnitude of the fee should resemble that (\$5-\$10) currently required for aircraft registration. The existing and widespread practice of allowing credit card charges or PayPal payment should be followed.
10. *Are there additional means beyond aircraft registration to encourage accountability and responsible use of UAS?* Yes. (1) prompt promulgation of a general rule for sUAS, following the FAA's 25 February 2015 proposal; (2) streamlining and acceleration of the section 333 exemption process; and (3) eventual replacement of this system of regulation with one requiring vendor self-certification of specific technological safety features as a condition of sale.

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