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U.S. Department of Transportation  
Docket Operations, M-30  
1200 New Jersey Avenue SE.  
West Building Ground Floor, Room W12-140  
Washington, DC 20590-0001

**Re: Docket Number FAA-2018-1087 and Notice Number 18-07; Notice of Proposed Rulemaking for the Operation of Small Unmanned Aircraft Systems over People**

To Whom It May Concern:

The Aircraft Owners and Pilots Association (AOPA) submits the following comment regarding the Notice of Proposed Rulemaking (NPRM) for the operation of small Unmanned Aircraft Systems (sUAS) over people. AOPA, the world's largest aviation membership association, represents members who collectively own, lease, and operate over 85% of all general aviation aircraft in the United States, including thousands of helicopters. We represent tens of thousands of members who fly sUAS, including several thousand members who solely fly sUAS aircraft.

In keeping with our mission for advocacy, education, safety, and fighting to keep general aviation accessible, AOPA is focusing a great deal of attention on efforts to promote safe integration and operation of UAS within the National Airspace System (NAS). Building off the 14 CFR § 107 rule, this NPRM takes another important incremental step towards the realization of sUAS integration into the NAS. AOPA supports the methodical, data-driven, and evolving safety management approach the FAA is taking towards sUAS. In our comments below, we highlight the importance of continuing industry collaboration on UAS integration, the need for additional mitigations before routine night operations, and our support for the modifications to the knowledge testing requirements.

**Continued Collaboration Essential to Successful Integration**

Our long-term vision for UAS is for routine operations to take place in harmony with other NAS users, like general aviation. We believe it is central to the FAA's mission to ensure equitable airspace access for all users. We are actively supporting the realization of that vision by participating in numerous FAA sponsored Aviation Rulemaking Committees (ARC), including UAS in Controlled Airspace ARC, UAS Identification and Tracking ARC, Micro UAS ARC, Airspace Access Priorities ARC, and many others. AOPA is also a member of the Drone Advisory Committee and the Unmanned Aircraft Safety Team. Additionally, AOPA is active in many RTCA and ASTM committees which draft standards that would affect UAS operators.

The safe and efficient integration of UAS into the same airspace where general aviation routinely operates today will require continued collaborative effort by government and industry stakeholders. We encourage the FAA to continue their collaborative approach to this topic. We will continue to support these collaborative groups and encourage the FAA to continue to embrace all of the aviation industry as their rulemaking evolves.

## **UAS Operations at Night**

We agree with the FAA's NPRM that there are many valid cases for sUAS nighttime operations, which is exemplified by the many 14 CFR § 107 waivers requested by pilots and approved by the FAA; however, based on the number of waiver requests denied, there may be a need for standardization and better operator education. The NPRM proposes to allow nighttime operations without a waiver but fails to provide adequate transparency into the nature of the denials such that a data driven decision cannot be made.

A review of night operation waiver requests that have been denied could allow commonalities to be identified. These issues may reveal information relevant to this rulemaking, such as a need for operator education concerning night operations. Night operations have additional risks, so we believe there must be additional training and testing on the unique challenges of flying at night. There should be emphasis on collision avoidance with other aircraft and the challenges of see and avoid at night.

We agree that a performance-based requirement for an anti-collision light system, which must be visible for at least three statute miles, is valid and consistent with other rules; however, we believe there must be a standard published to support such a requirement and identify a means of compliance. It is not clear how a manufacturer today can assure they comply with this FAA requirement. The proposed rule does not identify whether it requires white strobe lights, red beacon lights, or if any color or lighting configuration may meet this requirement. It is important that there be standardized lighting among all platforms so other pilots can accurately identify a sUAS. The FAA should provide additional guidance on how a manufacturer can comply with this regulatory requirement.

We believe additional lighting equipment to be necessary for the sUAS operator to maintain situational awareness. Human factors research is clear that detecting relative motion, such as determining an approaching manned aircraft, can be more challenging at night than during the day. As part of the Unmanned Aircraft Safety Team and other groups, we have heard numerous examples of sUAS pilots losing sight of their aircraft and/or losing situational awareness. The FAA should require position lighting as nighttime operations are inherently challenging and visual line of sight would be better maintained with lights that aid determining directional movement of the aircraft.

The FAA notes in the NPRM that they "anticipate the presence of the [anti-collision] light will provide other aircraft with awareness of the small unmanned aircraft's presence." We believe this statement may not be realistic for the majority of airborne operations and should be tested to validate. From operational experience, it is clear that sUAS, which weigh less than 55 pounds and can be compact in size, are difficult to see from a manned aircraft in motion. At night, even with the sUAS equipped with anti-collision lighting, we remain concerned whether a pilot in a manned aircraft will be able to recognize and avoid a collision with a sUAS. An sUAS is likely to disappear amongst city or country background lighting. It is critical the FAA emphasize sUAS operator regulatory responsibilities listed in 14 CFR § 107.37, which notes each sUAS must yield the right of way to all aircraft and cannot be operated so close to another aircraft as to create a collision hazard. Right of way rules are not changed by the fact the sUAS may have external lighting.

## **UAS Operations Over People**

This rulemaking would allow operations of sUAS over people in certain conditions. Expanding operations over people is highly desired by many sUAS operators who also want to ensure they conduct these operations in a safe manner. We support the FAA's incorporation of the Micro UAS ARC recommendations and the additional information provided by the Alliance for System Safety of UAS

through Research Excellence (ASSURE). The FAA's final rule must take a risk-based approach and consider all available data so that the performance-based standard does reduce the likelihood of injury while also being realistic. A risk-based approach is the best way to ensure safety without creating unnecessarily burdensome rules that stifle aviation innovation and activity.

### **Knowledge Testing Requirements**

As we noted in our comments to the 14 CFR § 107 NPRM, we support the administration of the knowledge test at an FAA approved testing center for an initial certificate, and we advocated for subsequent recurrent training or testing to be web-based. This NPRM embraces that progressive philosophy of accessible training and will ensure recurrent training is available at little to no cost to operators. Recurrent training is necessary for remote pilots but it must be accessible or else there is an increased likelihood of reduced compliance. Pilot education must be a cornerstone of safe integration of unmanned aircraft and the industry has a responsibility to ensure that unmanned pilots are properly trained and certified.

The FAA should not be the exclusive provider of this required knowledge training. Numerous other training courses are provided by industry in a manner that may be more effective and can better meet unmanned operator needs. For example, AOPA provides the BasicMed Course and the Flight Instructor Refresher Course. Empowering industry to provide this training will result in better unmanned pilots and a more connected industry.

### **Conclusion**

AOPA appreciates the FAA's progress on sUAS integration, and their data-driven and collaborative approach to the issues. Of foremost importance is safety, which must be reflected in all manner of flight operations, including pilot education and training, equipment requirements, and operational limitations.

We encourage the FAA to incorporate additional safety mitigations, including position lights, before enacting expanded nighttime operations. We believe the data shows a need for caution given most night operation waiver requests have been rejected. The expanded education requirement for night operations is important to reducing the overall risk.

We look forward to continuing to work with the FAA and our industry partners to ensure the safe and efficient integration of UAS into the NAS. Please feel free to contact me at 202-509-9515 if you have any questions.

Sincerely,



Rune Duke  
Senior Director, Airspace and Air Traffic