



**SMALL UAV  
COALITION**  
*A Partnership for  
Safety & Innovation*

July 18, 2019

Jay Merkle  
Executive Director  
UAS Integration Office  
Federal Aviation Administration

Rick Domingo  
Executive Director  
Flight Standards Service  
Federal Aviation Administration

Re: Section 349 of the FAA Reauthorization Act of 2018: Online aeronautical knowledge testing of recreational operators

Dear Executive Directors Merkle and Domingo,

The Small UAV Coalition strongly supports the efforts of the Federal Aviation Administration to develop an aeronautic knowledge test for recreational operators, which can be administered online, in compliance with section 349 of the FAA Reauthorization Act of 2018. In addition to complementary technical solutions available to the public, such as the Low Altitude Authorization and Notification Capability (LAANC), and B4UFly, requiring all UAS remote pilots to take and pass an aeronautical knowledge test is a critical element in promoting safe UAS operations in the navigable airspace.

During the FAA UAS Symposium earlier this month, the Unmanned Aircraft Safety Team (UAST) provided its recommendations for the implementation of the online aeronautical knowledge test. The Coalition endorses the UAST recommendations and encourages their adoption. The UAST appropriately acknowledges that “for FAA to achieve the goal of widespread voluntary participation, a reasonable balance must be struck between rigor and relaxed standards with regards to the core knowledge that should be imparted on test takers and the means by which the test is administered. A testing process or content that is overly challenging, expensive, time-consuming, or cumbersome, will undermine the goal of broad compliance.” This test must be something that assesses fundamental safety knowledge of the operator but also encourages participation of testers of all ages including youth. In particular, the Coalition echoes the UAST’s support for employing community-based organizations and private sector companies designated by the Administrator to administer the test, as contemplated by Congress.

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First, in developing an aeronautical test, the Coalition agrees with the UAST that the FAA should retain an instructional specialist to assist in its development. Otherwise known as psychometricians, these testing specialists measure the validity and reliability of an exam. The Coalition also agrees with the UAST that a minimum level of performance should be required.

Second, the test should assess a person's knowledge while also serving as an opportunity to provide additional safety information. Persons should not be able simply to take the exam repeatedly until they pass. Similarly, a person taking the test should not be told during the exam which answers were incorrect in order to allow the person to continue to attempt to answer the question correctly until there are no choices left. A failed exam should require a lockout/study period of 12 hours at a minimum.

Third, the questions and the answer options need to be randomly selected so that no two exams are identical. Using another rule of thumb from instructional design principles, a database needs to be four times the certification exam. For example, if the exam is 25 questions, the question database needs to be at least 100 exam questions in order to be properly randomized for each exam iteration.

Fourth, online testing must be secure from cheating; the FAA should expect no less from online testing systems. The preamble to Part 107 describes the ability to administer the Part 107 certification exam online when it can be "administered securely (with controls in place to prevent cheating) and allows the test taker to be positively identified without in-person interaction." 81 Fed. Reg. 42170 (June 28, 2016). These safeguards should apply to all aeronautical knowledge testing. The technology has evolved as the FAA envisioned: there are a number of affordable online proctoring solutions available that positively identify the test taker and prevent learner fraud. There are also plenty of affordable solutions to provide an official digital certificate that FAA and law enforcement will be able quickly to confirm as authentic, and which cannot be recreated with an ink jet printer. Without these safeguards, a person can quite easily cheat, and experts can take exams for multiple people. Word spreads quickly when there are obvious exam loopholes.

Fifth, the online exam should include a survey at the end. Designees and the FAA will gain valuable insight and feedback on the certification process above and beyond test scores, including how test takers prepared for the exam, rate the experience, and what they would improve.

The Coalition is willing to assist in any manner to help develop and promote online aeronautical knowledge testing that aligns with the unique expectations for recreational UAS pilots.

Sincerely,



Gregory S. Walden  
Aviation Counsel  
Small UAV Coalition