



Federal Aviation Administration

Summary of the Notice of Proposed Rulemaking on Operation and Certification of Small Unmanned Aircraft Systems

Released February 15, 2015

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I. EXECUTIVE SUMMARY

On February 15, 2015, the Federal Aviation Administration (FAA) released a Notice of Proposed Rulemaking (NPRM) on proposed rules to allow the operation of small unmanned aircraft systems (UAS) in the National Airspace System (NAS). A small UAS consists of the aircraft itself (which, as defined by statute, weighs less than 55 pounds) and the equipment necessary for the safe and efficient operation of that aircraft. Comments on the NPRM will be due 60 days after the NPRM is published in the Federal Register.

Specifically, the FAA is proposing to add a new part 107 to Title 14 of the Code of Federal Regulations to allow for routine civil operation of small UAS in the NAS and to provide safety rules for those operations. The major points of the proposed Part 107 rules are as follows.

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| Operational Limitations | <ul style="list-style-type: none">• Unmanned aircraft must weigh less than 55 lbs. (25 kg).• Visual line-of-sight (VLOS) only; the unmanned aircraft must remain within VLOS of the operator or visual observer.• At all times the small unmanned aircraft must remain close enough to the operator for the operator to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses.• Small unmanned aircraft may not operate over any persons not directly involved in the operation.• Daylight-only operations (official sunrise to official sunset, local time).• Must yield right-of-way to other aircraft, manned or unmanned.• May use visual observer (VO) but not required.• First-person view camera cannot satisfy “see-and avoid” requirement but can be used as long as requirement is satisfied in other ways.• Maximum airspeed of 100 mph (87 knots).• Maximum altitude of 500 feet above ground level (AGL). |
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| | <ul style="list-style-type: none"> • Minimum weather visibility of 3 miles from control station. • No operations are allowed in Class A (18,000 feet and above) airspace. • Operations in Class B, C, D and E airspace are allowed with the required Air Traffic Control (ATC) permission. • Operations in Class G airspace are allowed without ATC permission. • No person may act as an operator or VO for more than one unmanned aircraft operation at one time. • No operations from a moving vehicle or aircraft, except from a watercraft on the water. • No careless or reckless operations. • Requires preflight inspection by the operator. • A person may not operate a small UAS if he or she knows or has reason to know of any physical or mental condition that would interfere with the safe operation of a small UAS. • Proposes a micro UAS category (for aircraft weighing no more than 4.4 lbs.) that would allow operations in Class G airspace, over people not involved in the operation, and would require airman to self-certify that he or she is familiar with the aeronautical knowledge testing areas. |
| Operator Certification and Responsibilities | <ul style="list-style-type: none"> • Pilots of a small UAS would be considered “operators.” • Operators would be required to: <ul style="list-style-type: none"> ○ Pass an initial aeronautical knowledge test at an FAA-approved knowledge testing center. ○ Be vetted by the Transportation Security Administration. ○ Obtain an unmanned aircraft operator certificate with a small UAS rating (like existing pilot airman certificates, never expires). ○ Pass a recurrent aeronautical knowledge test every 24 months. ○ Be at least 17 years old. ○ Make available to the FAA, upon request, the small UAS for inspection or testing, and any associated documents/records required to be kept under the proposed rule. ○ Report an accident to the FAA within 10 days of any operation that results in injury or property damage. ○ Conduct a preflight inspection, to include specific aircraft and control station systems checks, to ensure the small UAS is safe for operation. |
| Aircraft Requirements | <ul style="list-style-type: none"> • FAA airworthiness certification not required. However, operator must maintain a small UAS in condition for safe operation and prior to flight must inspect the UAS to ensure |

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| | <p>that it is in a condition for safe operation. Aircraft Registration required (same requirements that apply to all other aircraft).</p> <ul style="list-style-type: none">• Aircraft markings required (same requirements that apply to all other aircraft). If aircraft is too small to display markings in standard size, then the aircraft simply needs to display markings in the largest practicable manner. |
| Model Aircraft | <ul style="list-style-type: none">• Proposed rule would not apply to model aircraft that satisfy all of the criteria specified in section 336 of Public Law 112-95.• The proposed rule would codify the FAA’s enforcement authority in part 101 by prohibiting model aircraft operators from endangering the safety of the NAS. |

Also on February 15, 2015, the White House separately released an Executive Order on “Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems.”

II. BACKGROUND

The NPRM addresses the operation, airman certification, and registration of civil small UAS. The NPRM lists the following examples of possible small UAS operations that could be conducted under the FAA’s proposed framework:

- Crop monitoring/inspection;
- Research and development;
- Educational/academic uses;
- Power-line/pipeline inspection in hilly or mountainous terrain;
- Antenna inspections;
- Aiding certain rescue operations such as locating snow avalanche victims;
- Bridge inspections;
- Aerial photography; and
- Wildlife nesting area evaluations.

The NPRM notes that small UAS operations risk considerations differ from those associated with manned-aircraft operations. Certain operations of small UAS have the potential to pose significantly less risk to persons and property than comparable operations of a manned aircraft, as the UAS is significantly lighter than a manned aircraft. However, the unmanned nature of the small UAS operations raises two unique safety concerns: (1) whether the person operating the small UAS, who would be physically separated from that aircraft during flight, would have the ability to see manned aircraft in time to prevent a mid-air collision with another aircraft; and (2) the possibility that, during flight, the person operating the small UAS may become unable to use the small UAS control interface due to a failure of the control link between the aircraft and the operator’s control station.

The FAA chartered the small UAS Aviation Rulemaking Committee (ARC) on April 10, 2008 to address the safety and regulatory issues associated with small UAS. On April 1, 2009, the ARC provided recommendations to the FAA regarding how to safely integrate small UAS into the NAS. In 2013, the U.S. Department of Transportation issued a comprehensive plan and subsequently the FAA issued a roadmap of its efforts to achieve safe integration of UAS operations into the NAS. In 2012, Congress passed the FAA Modernization and Reform Act of 2012 (Public Law 112-95). Congress directed the Secretary of Transportation to issue a final rule on small UAS that will allow for civil operations of such systems in the NAS. Congress also directed the Secretary to determine whether “certain unmanned aircraft systems may operate safely in the national airspace system.”

To further facilitate integration of UAS into the NAS, the FAA selected six test sites to test UAS technology and operations. In addition, the FAA is in the process of selecting a UAS Center of Excellence, which will also serve as another resource for these activities. The NPRM seeks comments on how it can encourage innovation, safe development and UAS integration into the NAS via its test site program.

III. DISCUSSION OF THE PROPOSAL

Pursuant to section 333, to determine whether small UAS may operate safely in the NAS, “the Secretary must find that the operation of the UAS would not: (1) create a hazard to users of the NAS or the public; or (2) pose a threat to national security.” The Secretary must also determine whether small UAS operations pose a sufficient safety risk to require an airworthiness certification.

A. Incremental Approach and Privacy

Although the term “UAS” encompasses aircraft with a broad range of sizes and capabilities, the FAA decided to proceed with multiple incremental UAS rules focusing first on small UAS, rather than a single omnibus rulemaking. The FAA therefore first proposes to integrate small UAS operations that pose the least amount of risk, while working on future rulemakings to integrate UAS operations that pose greater amounts of risk.

The NPRM’s objectives are to enable integration of small UAS into the NAS in a manner that does not impose unacceptable risk to other aircraft, people, or property. The FAA prefers to utilize performance-oriented requirements as opposed to design standards. The NPRM therefore seeks comment on any additional requirements the FAA could specify that are performance-oriented to minimize disincentives to develop new technologies that would achieve the FAA’s objectives at lower cost.

The FAA has been issuing exemptions to accommodate small UAS operations that are not for hobby or recreational purposes. The NPRM states that, once adopted, the rules will eliminate the need for the vast majority of exemptions to permit civil operation of small UAS. The exemption process will continue to be available, however, for UAS operations that fall outside adopted rules.

Noting that technologies are evolving, the NPRM seeks comments on whether the final rule should relax operating restrictions on small UAS equipped with technology that addresses the concerns underlying the operating limitations of the proposed rules. The FAA specifically noted this might be the case for line-of-sight requirements, and stated that such a relaxation could be addressed through some type of deviation authority, such as a letter of authorization or a waiver.

With regard to privacy concerns regarding UAS operations, the FAA notes that, although privacy issues fall beyond the scope of its rulemaking, the Department and FAA will participate in the multistakeholder process that the National Telecommunications and Information Administration (NTIA) will lead pursuant to a February 15 Presidential Memorandum on Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems. NTIA will commence the multistakeholder process within 90 days to develop small UAS privacy, accountability, and transparency best practices. The FAA further noted that state law and other legal protections for individual privacy may provide recourse to individuals whose privacy may be affected through another person's use of a UAS.

B. Applicability

The proposed rule would create part 107 in title 14 of the CFR, which would generally replace the airworthiness provisions of part 21, the airman certification provisions of part 61, and the operating limitations of part 91 of the FAA's rules.

The proposed part 107 rules would not apply to all small UAS operations, however. The proposed rules would not apply to: (1) air carrier operations; (2) external load and towing operations; (3) international operations; (4) foreign-owned aircraft that are ineligible to be registered in the United States; (5) public aircraft; (6) certain model aircraft; and (7) moored balloons, kites, amateur rockets, and unmanned free balloons.

With regard to transporting property utilizing UAS, proposed part 107 would not prohibit industries from doing so, so long as they do not do so for compensation and the total weight of the aircraft, including the property, is less than 55 pounds. For example, the FAA notes that research and development operations transporting property could be conducted under proposed part 107, as could operations by corporations to transport their own property within their business. The FAA seeks comment on whether it should permit UAS to transport property for payment within the other proposed constraints, such as its proposed ban on flights over uninvolved persons, the line-of-sight requirements, and the intent to limit operations to a constrained area. The FAA also seeks comment on whether it should develop a special class or classes of air carrier certification for UAS operations.

C. Operating Rules

The FAA considered further subdividing small UAS into different categories of unmanned aircraft that it would regulate differently based on weight, operational characteristics, and operating environment, but chose instead to treat small UAS as a single category without airworthiness certification. The FAA invites comments, however, on whether the regulation of small UAS should be further subdivided based on the size, weight, and operating environment.

1. Micro UAS Classification

The FAA also seeks comment on whether to include a micro UAS classification in its rules, which would include the following provisions:

- The UAS would weigh no more than 4.4 pounds (2 kilograms);
- The UAS would be made out of frangible materials that break, distort, or yield on impact, e.g., breakable plastic, paper, wood, and foam;
- The UAS would not exceed an airspeed of 30 knots;
- The UAS would not travel higher than 400 feet AGL;
- The UAS would be flown within VLOS; first-person view would not be used during the operation; and the aircraft would not travel farther than 1,500 feet away from the operator;
- The operator would maintain manual control of the flight path of the UAS at all times, and the operator would not use automation to control the flight path of the unmanned aircraft;
- The operation would be limited entirely to Class G airspace; and
- The UAS would maintain a distance of at least 5 nautical miles from any airport.

The FAA's approach would allow micro UAS to operate directly over people not involved in the operation. The operator of a micro UAS also would be able to operate using a UAS airman certificate with a different rating (an unmanned aircraft operator certificate with a micro UAS rating) than that created by the proposed part 107 rules. Furthermore, although an applicant would not need to take a knowledge test to obtain an unmanned aircraft operator certificate with a micro UAS rating, the applicant would simply submit a signed statement to the FAA stating that he or she has familiarized him or herself with all of the areas of knowledge that are tested on the initial proposed aeronautical knowledge test.

2. Operator and Visual Observer

a. Operator

The FAA proposes to define an operator as “a person who manipulates the flight controls of a small UAS.” (60) Although a small UAS operator is not a pilot, the FAA notes that the operator would still be considered an airman and be required by statute to obtain an airman certificate. The FAA therefore proposes to codify this statutory requirement in § 107.13(a), which would require a person who wishes to serve as an operator to obtain an unmanned aircraft airman certificate with a small UAS rating. The proposal would give each operator the power and responsibility typically associated with a pilot-in-command (PIC) under its existing rules, which would make each operator directly responsible for the small UAS operation, and the final authority as to the small UAS operation.

b. Visual Observer

To assist the operator with the proposed see-and-avoid and VLOS requirements, the FAA proposes to create the position of a visual observer. The rules would define a visual observer as

“a person who assists the small unmanned aircraft operator in seeing and avoiding other air traffic or objects aloft or on the ground.” (63) The FAA emphasizes that, as proposed, a visual observer is not a required crewmember.

The FAA proposes to require that the operator ensure that the visual observer is positioned in a location where he or she is able to see the small UAS in the manner required by the proposed VLOS and see-and-avoid provisions. The operator can do this by specifying the location of the visual observer. The FAA also proposes to require that the operator and visual observer coordinate to: (1) scan the airspace where the small unmanned aircraft is operating for any potential collision hazard; and (2) maintain awareness of the position of the small UAS through direct visual observation. The visual observer would maintain visual contact with the small UAS and the surrounding airspace and communicate to the operator the flight status of the small UAS and any hazards that may enter the area of operation so that the operator can take appropriate action. The proposed rule would require that the operator and visual observer maintain effective communication with each other at all times. The FAA also seeks comment on whether it should require the visual observer to stand close enough to the operator to allow for unassisted verbal communication.

Noting that the visual observer would not statutorily be required to obtain an airman certificate, the FAA seeks comments on whether it should require a visual observer to obtain an airman certificate. If so, the FAA seeks comments on what requirements an applicant should meet in order to obtain a visual observer airman certificate.

3. See-and-Avoid Visibility Requirements

a. See-and-Avoid

The FAA proposes to require that the operator (and VO, if used) must be capable of maintaining VLOS of the small UAS throughout the entire flight with human vision that is unaided by any device other than spectacles or contact lenses. The visual observer can be used to satisfy the VLOS requirements as long as the operator always remains situated such that he or she can exercise VLOS capability.

The proposed rule would require that the operator’s or visual observer’s vision of the small unmanned aircraft must be sufficient to allow him or her to “(1) know the small unmanned aircraft’s location; (2) determine the small unmanned aircraft’s attitude, altitude, and direction; (3) observe the airspace for other air traffic or hazards; and (4) determine that the small unmanned aircraft does not endanger the life or property of another.” (68) The operator and visual observer would be limited to operating only one small UAS at a time.

While prohibiting vision-enhancing devices other than spectacles or contact lenses, the FAA seeks suggestions for “other ways in which a first-person-view device could be used by the operator without compromising the risk mitigation provided by the proposed [VLOS] requirement.” (69) The FAA also invites comments on whether it should permit operations beyond VLOS in its final rule, for example through deviation authority, once technology matures to the extent that it can be used to safely operate beyond VLOS. If so, the FAA seeks comment on what level of validation the technology should be subject to in order to demonstrate

reliability. The NPRM further asks whether the FAA should use its existing certification or validation methodologies to evaluate UAS technology.

b. Other Visibility Requirements

The FAA proposes (1) to limit small UAS to daylight-only operations, and (2) to impose weather-minimum visibility requirements. Because the proposed daylight-only operations requirement may affect the ability to use small UAS in more northern latitudes (specifically Alaska), the FAA expresses its willingness to consider any reasonable mitigation that would ensure an equivalent level of safety while operating in low-light areas. The FAA seeks suggestions on how to effectively mitigate the risk of operations of small UAS during low-light or nighttime operations. The FAA also proposes to require a minimum flight visibility of three statute miles (5 kilometers) from the control station for small UAS operations and that the small UAS must be no less than 500 feet (150 meters) below clouds and 2,000 feet (600 meters) horizontal from clouds.

c. Yielding the Right of Way

The FAA proposes to require, in § 107.37(a)(2), that the small UAS operator must always be the one to initiate an avoidance maneuver to avoid collision with any other user of the NAS. The FAA notes that, “[o]ptimally, the small UAS operator should give right-of-way to all manned aircraft in such a manner that the manned aircraft is never presented with a see-and-avoid decision or the impression that it must maneuver to avoid the small UAS.” (73) The FAA also proposes to codify its existing prohibition from operating an aircraft so close to another aircraft as to create a collision hazard.

4. Containment and Loss of Positive Control

The inability of the UAS operator to directly control the UAS due to a failure of the control link between the aircraft and the operator’s control station is known as a loss of positive control. The FAA proposes to require the operator to confine the small UAS flight to a limited area. The FAA explains that such confinement would allow the operator to become familiar with the area of operation and to create contingency plans for using the environment in that area to mitigate the risk associated with possible loss of positive control. The NPRM seeks comments on whether the FAA should require a flight termination system or other technological equipment and how it would be integrated into the aircraft for small UAS.

a. Confined Area of Operation Boundaries

Noting that the proposed VLOS requirement would create a natural horizontal boundary on the area of operation, the FAA proposes to require that the small UAS must remain close enough to the operator at all times during flight for the operator to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses. To prevent a small UAS operation from expanding the horizontal boundary by stationing the operator on a moving vehicle or aircraft, the FAA proposes to prohibit the operation from a moving aircraft or land-based vehicle, with an exception for water-borne vehicles. The FAA does seek comment, however, on whether

it should permit small UAS operations from moving land-based vehicles, and invites comment on a regulatory framework for such operations.

Because most manned aircraft operations take place above 500 feet AGL, the FAA proposes, in § 107.51(b), to set an altitude ceiling of 500 feet AGL for small UAS operations. The FAA seeks comments on whether it should raise or lower this proposed 500-foot ceiling.

b. Mitigating Loss-of-Positive-Control Risk

Because different of small UAS pose different risks of loss of positive control, the FAA proposes to create a flexible performance-based standard. First, the FAA proposes that, prior to flight, the operator must conduct a preflight check to ensure that all links between the control station and the small UAS are working properly. If the operator finds that a control link is not functioning properly, the operator would not commence flight until the problem with the control link is resolved. Second, the FAA proposes to impose a speed limit of 87 knots (100 miles per hour) on small UAS. Third, the FAA proposes to prohibit the operation of a small UAS over a person who is not directly participating in the operation of that small UAS.

Furthermore, the FAA proposes to require that, prior to flight, the operator assess the operating environment within the operating environment and assess the risks to persons and property in the immediate vicinity, both on the surface and in the air. The FAA also proposes to require that the operator ensure that the small UAS will pose no undue hazard to other aircraft, people, or property in the event of a loss of control of the aircraft for any reason. The NPRM notes that the operator would have the flexibility to choose which mitigation method is appropriate for his or her specific operation to ensure any hazards posed by loss of positive aircraft control are sufficiently mitigated.

5. Limitations on Operations in Certain Airspace

a. Controlled Airspace

To limit exposure to manned aircraft, operators of small UAS would not be permitted to operate in Class A airspace under the proposed rules. Operators would only be permitted to fly UAS in Class B, C, D, and E airspace with authorization from the appropriate Air Traffic Control (ATC) facility. Operators would not be required to follow part 91 provisions regarding radio communications between the ATC and aircraft in controlled airspace, but UAS operators would have to “ensure that the proposed operations are planned and conducted in the safest manner possible.” (86) To that end, the FAA envisions that “[t]he more that a small UAS is able to show that it would satisfy the provisions of part 91 and ... local operating procedures, the easier to the access to the airspace would be.” (86) The FAA seeks comments regarding part 91 compliance issues related to this proposal.

b. Prohibited or Restricted Areas

The proposed § 107.45 mirrors existing part 91 requirements regarding prohibited or restricted areas: UAS operators would not be able to fly in such areas without permission from the using or controlling agency.

c. Areas Designated by Notice to Airmen

UAS operators would also need to review and comply with Notice to Airmen (NOTAM) flight restrictions under the proposed rules. Operators could, however, seek authorization from the appropriate ATC or a certificate of waiver or authorization from the FAA to operate in the restricted airspace.

6. Airworthiness, Inspection, Maintenance, and Airworthiness Directives

a. Inspection and Maintenance

The FAA declined to require small UAS operators to obtain airworthiness certification or meet the inspection and maintenance requirements of part 43. The FAA also considered creating a new permitting system for small UAS with extensive airworthiness requirements. Finding that none of these proposals were “proportionate to the risk” posed by small UAS, the FAA instead proposed § 107.21(b), requiring UAS operators to inspect the UAS prior to each flight to ensure that it is in a condition for safe operations. (90) If the inspection revealed that the small UAS is not safe to fly, proposed §§ 107.21(a) and 107.15(a) would “prohibit the operation of the small UAS until the necessary maintenance has been made and the small UAS is once again in a condition for safe operation.” (90) The proposed rules would forbid flying a UAS that is unsafe for operation, and prohibit continuing an operation when the operator has reason to know that the continuation would pose a hazard to other aircraft, people, or property.

The FAA invites comments on the maintenance and inspection proposals, as well as the costs and benefits of requiring small UAS operators to perform maintenance and inspections according to existing regulations.

b. Airworthiness Directives

The FAA declined to require type or production certificate, parts manufacturer approval (PMA), or technical standard order (TSO) authorization for small UAS or component parts. Notwithstanding this decision, UAS manufacturers may still use such certified component parts in order to obtain a “higher level of reliability.” (90) As such, the FAA proposes to require, in § 107.13(d), that an owner or operator must comply with all applicable airworthiness directives.

7. Miscellaneous Operation Provisions

a. Careless or Reckless Operation

Proposed § 107.23, similar to existing regulations, prohibits a person from operating a UAS in a careless or reckless manner, including dropping an object from an aircraft in flight if it would create a hazard.

b. Drug and Alcohol Prohibition

Small UAS operators will be required, under proposed § 107.27, to adhere to the existing part 91 rules regarding alcohol and drug use prohibitions, blood tests, and carrying illegal substances.

c. Medical Conditions

Proposed § 107.17 contains a provision similar to the existing rule prohibiting a person from acting as an operator or visual observer “if he or she knows or has reason to know that any physical or mental condition would interfere with the safe operation of a small UAS.” (94)

d. Sufficient Power

Under proposed § 107.49(a)(4), small UAS operators must ensure that the UAS has enough power “to operate for its intended operational time and an additional five minutes.” (95) The FAA adopted this buffer to ensure that the UAS retains enough power during operations to return to the operator or another location or to make a controlled landing.

D. Operator Certificate

1. Unmanned Aircraft Operator Certificate – Eligibility and Issuance

The proposed rules require a small UAS operator to obtain a new type of certification in lieu of a private or commercial pilot certificate—an unmanned aircraft operator certificate with a small UAS rating. The FAA’s rationale was that current pilot certification processes would be “unduly burdensome” on small UAS operators while having “limited relevance” to their operations. Under proposed § 107.61, operators would need to meet the following requirements:

- A minimum age of 17 years (although the FAA invites comments on whether the minimum age should be reduced to 16 years);
- The ability to read, speak, write and understand English (with room for exceptions for those unable to meet one of these requirements for medical reasons); and
- A passing score on an initial aeronautical knowledge test (although the FAA invites comments on “whether other requirements, such as passage of an FAA-approved training course, should be imposed either instead of or in addition to the proposed knowledge test.” (104)).

The FAA declined to apply existing flight proficiency and aeronautical experience requirements to the UAS operator certification process, finding that the rationales for these requirements have “limited applicability” to small UAS operations, especially in light of other operational parameters imposed by the proposed rules. (102)

The FAA seeks comment on the proposed aeronautical knowledge test, including additional areas to be tested and the cost and benefits associated with testing additional areas. As proposed, the test would assess the applicant’s knowledge of the following:

- The regulations applicable to small UAS operations;
- How to determine the classification of specific airspace and the requirements for operating in that airspace;
- Flight restrictions affecting small UAS operations, including how to determine which areas are prohibited, restricted, or subject to a temporary flight restriction (“TFR”) in order to comply with the proposed flight restrictions in §§ 107.45 and 107.47;

- How to clear an obstacle during flight;
- The effects of weather and micrometeorology;
- How to calculate the weight and balance of the small UAS to determine the impacts on performance;
- How to respond to an emergency;
- Aeronautical decision-making and judgment and crew resource management;
- Airport operations and radio communication procedures; and
- The physiological effects of drugs and alcohol.

Under the proposed rules, the FAA would create the knowledge test and administer it at an existing FAA-approved knowledge testing center. The proposed rules include provisions to aid in the administration of the test, including identification requirements, a prohibition on cheating and other unauthorized conduct, and a mandatory waiting period prior to a test retake.

The FAA also proposes to require operators to pass a recurrent knowledge test every 24 months, which mirrors the current 24-month flight review cycle. These tests would also be created and administered by the FAA, and would test the following areas:

- Regulations that govern small UAS operation;
- Airspace classification and operating requirements, obstacle clearance requirements, and flight restrictions;
- Sources of weather information and airport operations; and
- Emergency procedures, crew resource management, and aeronautical decision-making and judgment.

The FAA invites comments on alternative locations for administering the knowledge test and recurrent tests, including whether the test should also be offered online. For commenters advocating for an online option, the FAA seeks comments on “what safeguards should be implemented to protect the integrity of the small UAS knowledge test, assure the identity of the test taker, and protect the test-taker’s [personally identifiable information] that would be provided online.” (110)

Under proposed rules, the unmanned aircraft operator airman certificate will not have an expiration date, and will therefore remain intact until surrendered, suspended, or revoked. All applicants for airman certificate will be vetted by the Transportation Security Administration (TSA), and will not receive the certificate until TSA determines that the applicant is not a security threat.

In lieu of an airman medical certificate, as required in the application process for most pilots, the FAA proposes to require UAS operators to “self-certify, at the time of their airman application, that they do not have a medical condition that could interfere with the safe operation of a small UAS.” (115) In addition to the certification, which is required by § 107.63(a)(2), an operator will be ineligible for the certificate pursuant to § 107.61(d), if he or she knows or has reason to know of such a medical condition.

2. Military Equivalency

Recognizing that members of the Armed Forces may have gained significant UAS expertise during their service, the FAA proposes in § 107.75 to permit “current or former military operators of unmanned aircraft to take a more limited recurrent aeronautical knowledge test rather than the initial aeronautical knowledge test to obtain an unmanned aircraft operator certificate with a small UAS rating.” (117) The proposed rule excludes servicemen and women who were subject to disciplinary action involving any aircraft operation.

The FAA declined to establish a parallel certification path for individuals who have been operating UAS under a non-military Certificate of Waiver or Authorization (COA), but invites comments on whether non-military COA pilots should also be permitted to take the recurrent knowledge test in lieu of the initial knowledge test.

3. Unmanned Aircraft Operator Certificate: Denial, Revocation, Suspension, Amendment, and Surrender

a. TSA Vetting and Positive Identification

Because TSA requires positive identification to verify the identify of an applicant for an airman certificate prior to determining whether the applicant is a security threat, the FAA proposes to allow an applicant for a small unmanned aircraft operator certificate with a small UAS rating to submit the application to a Flight Standards District Office (FSDO), a designated pilot examiner (DPE), an airman certificate representative (ACR) for a pilot school, a certificated flight instructor (CFI), or any “other persons authorized by the Administrator.” (120) The NPRM notes that there may be a “nominal processing fee” charged by the authorized FAA representative where there is no fee for submitting to an FSDO. Such a fee, however, would “offset the average cost of traveling to a FSDO as well as the delay in submitting the application ... due to having to make an appointment with the FSDO during the work week,” as FSDO offices are limited in number and hours of operation. (120-21)

The FAA selected entities to verify an applicant’s identity. The entities already accept and sign airman applications (FAA personnel, DPEs, and ACRs), or are already required to verify identity under TSA regulations (CFIs). In that vein, the FAA declined to allow knowledge testing centers to verify an applicant’s identity. The FAA, however, seeks comments on whether knowledge testing centers should be allowed to accept airman applications.

b. Drug and Alcohol Violations

Under proposed § 107.57, the FAA would be able to deny a certificate application or take other certificate action for violations of federal or state drug laws or violating the drug provisions of part 91, including carriage of illegal drugs, or failure to submit for a blood alcohol test or to release test results to the FAA.

c. Change of Name and Address

Similar to existing regulations for other types of airman certificates, proposed § 107.77 permits individuals holding an unmanned aircraft operator certificate with a small UAS rating to change the name on the certificate and requires the certificate holder to change the mailing address associated with the certificate within 30 days of a change of address.

d. Voluntary Surrender of Certificate

The FAA proposes in § 107.79 to permit a holder of an unmanned aircraft operator certificate with a small UAS rating to permanently surrender the certificate by submitting a signed statement.

E. Registration

The FAA proposes to subject UAS operators to registration requirements under part 47, except that individuals operating UAS not previously registered anywhere need not obtain a registration number for the aircraft prior to submitting the registration application as would be required by § 47.15. The registration process would thus generally require submission of the following: “(1) an Aircraft Registration Application providing information about the aircraft and contact information for the aircraft owner; (2) evidence of ownership (such as a bill of sale); and (3) the \$5.00 registration fee.” (126) If the application and materials satisfy the requirements of part 47, the FAA will assign a registration number to the aircraft and furnish a Certificate of Aircraft Registration to the applicant. The FAA will retain part 47’s three-year expiration of the Certificate of Aircraft Registration for UAS.

Because UAS, unlike manned aircraft, would not need to be type-certificated under the proposed rules and lack standardization, the FAA invites comment as to whether small UAS owners should be required to provide additional information during the registration process. The FAA suggests requirements similar to those for amateur-built aircraft under 47 C.F.R. § 47.33(c).

F. Marking

1. Display of Registration Number

The FAA proposes to apply existing Subpart C marking requirements to UAS. Under the existing rules, the aircraft’s registration number must: “(1) [be] painted on the aircraft or affixed to the aircraft by some other permanent means; (2) have no ornamentation; (3) contrast in color with the background; and (4) be legible.” (128) The existing rules further establish locations on various types of aircraft where the number must be displayed, and specify a minimum size for the text. UAS that are too small to comply with the size requirements will be able to utilize existing § 45.29(f), which permits such aircraft to display the registration number “in as large a manner as practicable.” (130)

In this regard, the FAA invites comments on whether a small UAS should be required to display its registration number in accordance with Subpart C. If so, the FAA asks what standard its

should impose for “how a small unmanned aircraft displays its registration number in order to fulfill its safety oversight obligation regarding small unmanned aircraft operations.” (130)

2. Marking of Products and Articles

The FAA concluded that requiring small UAS to comply with the fireproof identification plate requirements of Subpart B of part 45 would not be cost-justified. The FAA seeks comments and supporting documentation on the cost and benefits of mandating compliance with Subpart B and alternative methods of manufacturer marking.

G. Fraud and False Statements

The FAA proposes in § 107.5 to: (1) “prohibit a person from making a fraudulent or intentionally false record or report that is required for compliance” with the proposed rules; (2) prohibit a person from fraudulently reproducing a certificate, rating, authorization, record, or report made pursuant to the proposed rules; and (3) specify that “the commission of a fraudulent or intentionally false act ... could result in the suspension or revocation of a certificate or waiver” issued pursuant to the proposed rules. (132) The NPRM notes that these civil sanctions are similar to those imposed by other FAA regulations.

H. Oversight

1. Inspection, Testing, and Demonstration of Compliance

The FAA seeks to codify its statutory oversight authority in the new rules, proposing in § 107.7 to require the operator, visual observer, or owner of small UAS to allow the FAA, upon request, to make any test or inspection of the UAS, operator, or visual observer to determine compliance with its rules. The proposed rule also would require an operator or owner to make available to the FAA upon request any document, record, or report required to be kept by the rules.

2. Accident Reporting

To ensure proper oversight of UAS operations, the NPRM includes a rule requiring small UAS operators to report within 10 days any operation resulting in injury to a person or damage to property other than the aircraft itself. (134) The FAA invites comments on whether it should require this type of accident reporting and suggestions for alternative methods of ensuring compliance with the rules. The FAA further asks whether it should exempt small UAS accidents resulting in minimal property damage and if so, what an appropriate damage threshold would be to trigger accident reporting requirements.

IV. REGULATORY NOTICES AND ANALYSES; EXECUTIVE ORDER DETERMINATIONS

In addition to describing and inviting comment on the FAA’s substantive proposals, the NPRM includes a number of regulatory notices and analyses. Specifically, the NPRM includes:

- The FAA’s regulatory evaluation, including summaries of the benefits and costs of the rule;
- The Initial Regulatory Flexibility Determination, which consists of a description of the FAA’s reasons for considering the action, a statement of legal basis and objectives for the proposals, a description of record keeping and other compliance requirements in the proposal, a discussion of federal rules that may duplicate, overlap, or conflict with the proposed rules, a description and estimated number of small entities to which the proposed rule applies, and a discussion of alternatives considered;
- An international trade impact assessment;
- An unfunded mandates assessment;
- An analysis of the proposals pursuant to the Paperwork Reduction Act;
- A discussion of international compatibility and cooperation;
- An economic analysis; and
- A discussion of the impact of the proposals on intrastate aviation in Alaska.

Finally, the NPRM includes an analysis of the proposed rules in light of Executive Orders 13132 (Federalism) and 13211 (Regulations that Significantly Affect Energy Supply, Distribution, or Use).

V. PROPOSED AMENDMENTS

The appendices detail the proposed rule changes, which include changes to the following existing sections:

- Part 21: § 21.1
- Part 43: § 43.1
- Part 45: § 45.9
- Part 47: § 47.15
- Part 61: §§ 61.1, 61.8, 61.193, 61.413
- Part 91: § 91.1
- Part 101: §§ 101.1, 101.41, 101.43

The appendices also include the text of all provisions in the new proposed part 107.

Comments are due 60 days after publication of the NPRM in the Federal Register. If you are interested in participating or seek additional information on these issues, please contact:

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