

On August 29, the Federal Aviation Administration's (FAA) final rule on the Operation and Certification of Small Unmanned Aircraft Systems (Final Rule) went into effect. The FAA has taken more than a year to finalize its draft rule, which was released in February 2015. In addition, in early July Congress passed a short-term extension of FAA programs through September 2017, which included some unmanned aircraft systems (UAS) provisions. This document summarizes relevant aspects of the Final Rule and the FAA extension.

In the Analysis of the Final Rule section, we address various aspects of the regulation broken down into three parts. Parts 1 and 2 review the operating restrictions and the requirements for obtaining a remote pilot certificate, respectively, while Part 3 discusses the process for obtaining waivers to many of the operating restrictions. Broadly speaking, the Final Rule significantly relaxes the requirements for commercial operators of UAS, but does not significantly expand allowable UAS operations. However, the waiver process provides some flexibility for allowable UAS operations.

With regard to Congressional action in this space, Congress had been considering FAA reauthorization legislation that would direct the FAA to expand allowable operations, pursue a risk-based permitting system, and generally hasten the integration of UAS into the National Airspace System. Indeed, Congress passed a short-term extension in July that authorizes FAA programs through September 2017, with some relevant policy riders. Specifically, the short-term extension: (1) directs the FAA to work with stakeholders to develop standards for remote identification of operators; (2) establishes a pilot program for airport safety and airspace hazard mitigation at airports and other critical infrastructure; (3) directs the FAA to work with NASA to develop a research plan and implement a pilot program for unmanned aircraft system traffic management; and (4) directs the FAA to conduct additional research on manned aircraft collision and probabilistic metrics.

Looking ahead, the FAA has already said it is working on additional rules to expand the range of allowable operations. On the Congressional side, we expect Members of Congress to stay interested in this rapidly developing industry.

## Analysis of the Final Rule

This analysis focuses on the Final Rule's numerous regulations regarding operational restrictions and operator requirements most pertinent to commercial UAS operation.

## Part 1: Operating Rules

The Final Rule adopts many of the draft rule's operating restrictions and requirements, though several are modified and expanded based on comments the FAA received.

### Remote Pilot Certificate

The Final Rule requires that a UAS remote pilot in command must have a remote pilot certificate with a small UAS rating. Remote pilot certificates will be issued by the FAA upon completion of an initial aeronautical knowledge test at an FAA-approved training facility. This provision was also proposed in the draft rule. Additionally, individuals may operate UAS without a remote pilot certificate under the direct supervision of a remote pilot in command if the remote pilot in command has the ability to immediately take direct control of the operation of the UAS.

### Remote Pilot in Command

The remote pilot in command is ultimately responsible for the operation of the UAS and must ensure that regulations are followed. Specifically, the remote pilot in command: (1) must be designated before or during the flight of the UAS; (2) is directly responsible for and is the final authority as to the operation of the UAS; (3) must ensure the UAS will not pose an undue hazard to other people, aircraft, or property in the event of loss of control; (4) must ensure the UAS operation complies with applicable regulations; and (5) must have the ability to direct the UAS to ensure compliance with applicable regulations.

### See-and-Avoid and Visibility Requirements

The Final Rule continues to require that the remote pilot in command and any visual observer be able to see the UAS throughout the entire flight with vision that is unaided by any device other than corrective lenses. If the remote pilot in command, and the person manipulating the controls under the remote pilot's supervision if relevant, is unable to observe the flight directly, a visual observer must be used. Specifically, the remote pilot in command or visual observer must observe the entire flight in order to: (1) know the UAS' location; (2) determine the UAS' attitude, altitude, and direction; (3) observe the airspace for other air traffic or hazards; and (4) determine that the UAS does not endanger the life or property of another.

If a visual observer is used, they must meet the following requirements: (1) maintain effective communication with the remote pilot in command, or person manipulating the controls, and vice versa; (2) be able to see the UAS for the entire flight; and (3) coordinate with the remote pilot in command, or person manipulating the controls, to scan the airspace where the UAS is operating for any potential collision hazard and maintain awareness of the position of the UAS through direct visual observation.

## Preflight Checks

The Final Rule requires remote pilots in command to conduct a variety of preflight inspections and safety checks. These include: (1) assessing the operating environment for risks to persons and property on the ground and in the air, including assessing the local weather conditions, the local airspace and any flight restrictions, the location of persons and property on the surface, and other ground hazards; (2) ensuring all persons directly participating in the operation are informed about the operating conditions, emergency procedures, contingency procedures, roles and responsibilities, and potential hazards; (3) ensuring that all control links between the ground control station and the UAS are working properly; (4) ensuring there is enough available power for the UAS to operate for the intended time; and (5) ensuring any object attached or carried by the UAS does not adversely affect the flight characteristics or controllability of the UAS.

## Operating Restrictions

There are a number of additional operating requirements and restrictions included in the Final Rule that address general operating limitations, daytime operation, operation over people, operation in different classes of airspace, operating multiple UAS, and operating UAS from a moving vehicle.

Interestingly, the Final Rule expands the allowable operations around sunrise and sunset, provides that stationary vehicles may provide protection for non-participating persons, allows for the operation of UAS above 400 feet above ground level if operated within 400 feet of a structure, and allows for the operation of UAS from a moving vehicle in sparsely populated areas in some circumstances.

- The UAS must be operated within the following limitations:
  - The groundspeed must not exceed 87 knots (100 miles per hour);
  - The altitude must not exceed 400 feet above ground level, unless the UAS:
    - Is flown within 400 feet of a structure, and
    - Does not fly higher than 400 feet above the structure's immediate uppermost limit;
  - The minimum flight visibility must be no less than three miles; and
  - The minimum distance of the UAS from clouds must be no less than:
    - 500 feet below the cloud, and
    - 2,000 feet horizontally from the cloud.

- While the Final Rule does not provide for night time operations, it does expand allowable operations to include "civil twilight" (30 minutes directly prior to sunrise and after sunset). To operate during civil twilight, UAS must have lighted anti-collision lighting visible for at least three statute miles.
- The UAS may not be operated over other people unless they are: (1) directly participating in the operation of the UAS, or (2) located under a covered structure or inside a stationary vehicle that can provide reasonable protection from a UAS.
- The UAS may not be operated without prior authorization from Air Traffic Control in Class B, C, or D airspace, or within the lateral boundaries of the surface area of the Class E airspace designated for an airport. UAS may be operated in Class G airspace without prior approval.
- No person may operate or act as a remote pilot in command or visual observer for more than one unmanned aircraft at the same time.
- No person may operate a UAS from a moving aircraft, however UAS may be operated from a moving vehicle on the ground or water if the UAS is flown over a sparsely populated area and is not transporting another person's property for compensation or hire.

## Part 2: Remote Pilot Certificate Process

The Final Rule establishes a number of requirements for obtaining a remote pilot certificate, including eligibility requirements and restrictions.

Specifically, the Final Rule reduces the minimum age of remote pilots from 17 years old in the draft rule to 16 years old. Additionally, the Final Rule requires a remote pilot to: (1) be able to read, speak, write, and understand English; (2) not know they have a physical or mental condition that would interfere with safe operation of the UAS; and (3) demonstrate aeronautical knowledge. A person can demonstrate aeronautical knowledge by either (1) passing an aeronautical knowledge test at an approved facility, or (2) possessing a Part 61 pilot's certificate and completing a training course.

The Final Rule establishes requirements for identification of applicants for a remote pilot certificate, and requires individuals who fail a knowledge test to wait 14 days to reapply for the test. Individuals who have recent offenses involving alcohol or illegal drugs may face a denial of their application for up to one year or the revocation or suspension of their remote pilot certificate. Finally, remote pilot certificate holders must take a recurrent aeronautical knowledge test every two years to remain certified.

## Part 3: Waivers

While the Final Rule does not expand operations to the extent industry participants requested, the Final Rule does include a waiver provision that allows several requirements to be waived by the FAA Administrator. To grant a waiver, the Administrator must find that the proposed UAS operation can be safely conducted under the terms of the waiver. A request for a waiver must contain a complete description of the proposed operation and a justification that establishes the operation can be safely conducted. The Administrator may prescribe additional limitations when granting a waiver.

Only the following restrictions may be waived:

- Operation from a moving vehicle or aircraft, but no waiver will be issued if it is for carriage of property of another for compensation or hire;
- Daylight operation requirements;
- Visual line of sight requirements, but no waiver will be issued if it is for carriage of property of another for compensation or hire;
- Visual observer requirements;
- Operation of multiple UAS;
- Yielding the right of way;
- Operation over people;
- Operation in certain airspace; and
- Operating limitations for certain UAS.

If you have any questions, please do not hesitate to contact us. We would be very pleased to advise further on the Final Rule and the FAA extension discussed in this document, as well as on any specific points relating to your particular circumstances or industry sector.

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