



Federal Aviation Administration

Fact Sheet – UNMANNED AIRCRAFT SYSTEMS (UAS)

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Unmanned aircraft systems (UAS) come in a variety of shapes and sizes and serve diverse purposes. They may have a wingspan as large as a jet airliner or smaller than a radio-controlled model airplane.

Because they are inherently different from manned aircraft, introducing UAS into the nation's airspace is challenging for both the FAA and aviation community. UAS must be integrated into the busiest, most complex airspace in the world—one that is evolving from ground-based navigation aids to a GPS-based system in NextGen. And because UAS technology also continues to evolve, the agency's rules and policies must be flexible enough to accommodate that progress.

Integration of UAS has to be safe, efficient and timely. Safety is the FAA's primary mission, the agency is committed to reducing delays and increasing system reliability. This new technology has significant potential safety and economic benefits to help achieve these goals.

The FAA is taking an incremental approach to safe UAS integration as the agency acquires a better understanding of operational issues such as training requirements, operational specifications, and technology considerations.

Safety First

The FAA maintains the world's safest aviation system. As a provider of air traffic control services, the agency also must ensure the safety and efficiency of the nation's entire airspace.

Since 1990, the agency has allowed limited use of UAS for important public missions such as firefighting, disaster relief, search and rescue, law enforcement, border patrol, scientific research, and testing and evaluation. Recently, the FAA has authorized some non-recreational UAS operations in controlled, low-risk situations.

UAS operations potentially range from ground level to above 50,000 feet, depending on the specific type of aircraft. However, no operations are currently authorized in the airspace that exists over major urban areas and contains the highest density of manned aircraft.

Flying model aircraft/UAS for a hobby or recreational purpose does not require FAA approval, but all model aircraft operators must fly according to the law.

The FAA authorizes non-recreational UAS operations on a case-by-case basis, and there are several ways to gain agency approval.

Civil UAS Operations

In February 2015, the Department of Transportation and the FAA released a proposed set of regulations that will pave the way for small UAS – those under 55 pounds – to enter the mainstream of U.S. civil aviation. The rule would allow routine use of small UAS in today's aviation system, and is flexible enough to accommodate future technological innovations.

The proposal offers safety rules addressing non-recreational small UAS operations and for model aircraft operations that do not meet the criteria in Section 336 of Public Law 112-95. The rule would limit small UAS to daylight flights and visual-line-of-sight operations. The proposed rule also addresses issues such as height restrictions, operator certification, optional use of a visual observer, aircraft registration and marking, and operational limits. The proposed rule also includes extensive discussion of a possible “micro” classification for UAS under 4.4 pounds. The FAA is asking the public to comment on whether it should include this option as part of a [final rule](http://www.faa.gov/news/press_releases/news_story.cfm?newsId=18295) (http://www.faa.gov/news/press_releases/news_story.cfm?newsId=18295).

Private sector manufacturers and technology developers currently can obtain a Special Airworthiness Certificate in the experimental category to conduct research and development, crew training, market surveys, and flight demonstrations. Experimental certificates preclude carrying people or property for compensation or hire and typically include operating limitations such as altitude and geographical area.

Commercial firms also may fly a UAS that has an FAA Restricted Category Type Certificate. The agency issues these certificates to UAS models previously flown by the military. They allow limited operations, such as wildlife conservation flights, aerial surveying, and oil/gas pipeline patrols. As of October 2014, the FAA had approved operations using two certificated UAS.

Since June 2014, the agency has received petitions for exemptions under Section 333 of Public Law 112-95 to permit non-recreational UAS operations before the small UAS rule is finalized. Under that section of the law, the Secretary of Transportation can determine whether certain airworthiness requirements are necessary to authorize specific UAS to fly safely in narrowly-defined, controlled, low-risk situations.

Commercial entities ask for relief from airworthiness certification requirements as allowed under Section 333, in addition to relief from regulations that address general flight rules, pilot certificate requirements, manuals, and maintenance and equipment mandates.

Model Aircraft

On June 23, 2014, the FAA issued an interpretation of Public Law 112-95 providing clear guidance to model operators on the “do’s and don’ts” of flying safely in accordance with the Act.

In the document, the FAA restates the law’s definition of “model aircraft,” including requirements that they not interfere with manned aircraft, be flown within sight of the operator, and be operated only for hobby or recreational purposes. The agency also explains that model aircraft operators flying within five miles of an airport must notify the airport operator and air traffic control tower.

The FAA reaffirms that the law’s model aircraft provisions apply only to hobby or recreation operations and do not authorize the use of model aircraft for non-recreational operations.

[Government \(Public\) UAS Operations \(http://www.faa.gov/uas/public_operations/\)](http://www.faa.gov/uas/public_operations/)

A “Certificate of Waiver or Authorization” (COA) is available to government entities that want to fly a UAS in civil airspace. Common uses include law enforcement, firefighting, border patrol, disaster relief, search and rescue, military training and other government operational missions.

Applicants must submit their COA request through an online system. The FAA then evaluates the proposed operation to see if it can be conducted safely. If granted, the COA allows an operator to use a defined block of airspace, and includes special provisions unique to the proposed operation. For instance, a COA may require flying only under Visual Flight Rules (VFR) and/or only during daylight hours.

Today, the average time to obtain an authorization for non-emergency operations is less than 60 days, and the renewal period is two years. The agency has expedited procedures to grant one-time COAs for time-sensitive emergency missions such as disaster relief and humanitarian efforts – sometimes in just a few hours.

Most COAs require coordination with an appropriate air traffic control facility and may require a transponder on the UAS to operate in certain types of airspace. Because UAS technology cannot yet comply with “see and avoid” rules that apply to all aircraft, a visual observer or an accompanying “chase plane” must maintain visual contact with the UAS and serve as its “eyes” when operating outside airspace restricted from other users.

Year	2009	2010	2011	2012	2013	2014
COAs Issued	146	298	313	257	423	XXX

Operating and Certification Standards

Integrating UAS into the nation’s airspace presents both opportunities and challenges. However, everything the FAA does is focused on ensuring the safety of the nation’s aviation system. New policies, procedures, and approval processes are needed to deal with the increasing desire by civilian operators to fly UAS. Developing and implementing these new UAS standards and guidance is a long-term effort.

In November 2013, the Department and the FAA released its first annual Integration of Civil [UAS in the National Airspace System \(NAS\) Roadmap \(PDF\)](#) outlining efforts needed to safely integrate unmanned aircraft into the nation’s airspace. The Roadmap addresses current and future policies, regulations, technologies, and procedures that will be required as demand moves from today’s limited accommodation of UAS operations to the extensive integration of UAS into the NextGen aviation system in the future.

The Department of Transportation also released a [Comprehensive Plan \(PDF\)](#) that dovetails with the Roadmap. This Comprehensive Plan details the multi-agency approach to the safe and timely integration of unmanned aircraft. The plan establishes goals to integrate both small and larger unmanned aircraft, and to foster America’s leadership in advancing this technology.

The FAA chartered a UAS Aviation Rulemaking Committee in 2011, which is still active. The group's goal is to develop inputs and recommendations on appropriate operational procedures, regulatory standards and policies before allowing routine UAS access to the nation's airspace.

The FAA also has asked RTCA – a group that facilitates expert advice to the agency on technical issues – to work with industry to help develop UAS standards. RTCA's technical group (Special Committee 228) is addressing how UAS will handle communication, command and control and how they will "sense and avoid" other aircraft.

The FAA continues to work closely with its international aviation counterparts to harmonize standards, policies, procedures, and regulatory requirements.

[UAS Test Sites \(http://www.faa.gov/uas/legislative_programs/test_sites/\)](http://www.faa.gov/uas/legislative_programs/test_sites/)

After a rigorous selection process, the Federal Aviation Administration chose six UAS test sites on December 30, 2013. These six test sites have geographic and climatic diversity and help the FAA meet its UAS research needs.

The six Test Sites, which were operational as of mid-August 2014, include:

- University of Alaska – Fairbanks
- State of Nevada
- Griffiss International Airport (Rome, NY)
- North Dakota Department of Commerce
- Texas A&M University – Corpus Christi
- Virginia Polytechnic Institute and State University (Virginia Tech)

Each test site operator manages the site in a way that gives access to parties interested in using the site. The FAA's role is to ensure each site sets up a safe testing environment and operates under strict safety standards.

First Responders

The FAA Modernization and Reform Act of 2012 also directed the agency to expedite the COA process for government public safety agencies that want to use small UAS. In May 2013, the FAA and the Justice Department signed an agreement to streamline the COA process for law enforcement – an agreement that meets the mandate. The agreement expanded the allowable UAS weight up to 25 pounds, an increase from the 4.4 pounds specified in the Act.

Today, a law enforcement organization first receives a COA for training and performance evaluation. When the organization has shown proficiency in flying its UAS, it receives a “jurisdictional” COA.

Meeting the Challenge

For more than 50 years, the FAA has maintained a proven track record of introducing new technology and aircraft safely into the national airspace system. The agency will successfully meet the challenges posed by UAS technology in a thoughtful, careful manner that ensures safety and addresses privacy issues while promoting economic growth.

While aviation is unquestionably an industry known for innovation, it is also an industry with a strong history of collaboration between government and industry. This collaboration has helped the FAA achieve a position of international leadership. By working together, government and industry will overcome the challenges UAS integration presents and open the door to a more diverse and dynamic aviation future for both manned and unmanned aircraft.

For more information: <http://www.faa.gov/uas/> (<http://www.faa.gov/uas/>)

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