

Air Medical Operations and Drones

Drones pose a very real threat to air medical patient and crew safety - not only when taking off and landing at the scene of an accident or at hospital helipads but also while in flight. This has been well documented by the number of close encounters that airlines have had at airports where drones are not allowed within five miles. We cannot be assured that drone operators know or will comply with the rules of piloting a drone.

This lack of understanding and compliance when flying in the National Airspace (NAS), along with the absence of finalized rules for commercial drone operation, has led to more than 721 reported near misses and encounters between aircraft (rotary-wing and fixed-wing) and drones between November 13, 2014 and August 20, 2015 according to data from a report provided by the FAA.

On 11 December 2015 a comprehensive study was released by **The Center for the Study of the Drone at Bard College** that offers a complete examination of incidents involving drones and manned aircraft in the National Airspace over the past two years. Using data from the FAA and Department of Interior, the report, "[Drone Sightings and Close Encounters: An Analysis](#)," examined 921 incidents in the National Airspace from December 17, 2013 to September 12, 2015. They organized the reports into two categories:

- * Sightings-incidents in which a pilot or an air traffic controller spotted a drone flying within or near the flight paths of manned aircraft without posing an immediate threat of collision.

- * Close Encounters, where a manned aircraft came close enough to a drone that it met the Federal Aviation Administration's definition of a "near midair collision" or close enough that there was a possible danger of collision.

Their analysis revealed that 35.5 percent of the incidents were Close Encounters, and 64.5 percent were Sightings. 90 percent of all incidents occurred above 400 feet, the maximum altitude at which drones are allowed to fly. The majority occurred within five miles of an airport (prohibited airspace for all drones, regardless of their flight altitude). Incidents within five miles of airports were at lower altitudes than incidents beyond five miles of an airport. These incidents occurred mostly in areas where manned air traffic density is high and where drone use is prohibited. There were 158 incidents in which a drone came within 200 feet or less of a manned. In 51 incidents the proximity was 50 feet or less, and in 28 incidents the pilot performed evasive maneuvers to avoid a collision. 116 of the Close Encounters involved multiengine jet aircraft, 90 of which were commercial aircraft. They also counted 38 Close Encounter incidents involving helicopters. The highest number of incidents occurred in large metropolitan areas. Two-thirds of incidents happened between 10 a.m. and 6 p.m., local time.

A more detailed report can be found at:
<http://dronecenter.bard.edu/drone-sightings-and-close-encounters/>

Additional Background Information

The FAA first authorized use of unmanned aircraft in the nation's airspace in 1990. Since then, the agency has allowed limited use of Unmanned Aerial Vehicles (UAV) or Unmanned Aerial Systems (UAS) most commonly referred to as Drones for important missions in the public interest, such as firefighting, disaster relief, search and rescue, law enforcement, border patrol, scientific research, military training, and testing and evaluation. Recently, the FAA has started authorizing limited commercial UAV operations in controlled, low-risk situations.

Drones operators are classified into three distinct groups: **commercial** (business), **public** (governmental agencies) and **hobbyists** (recreational) users. Each has their own specific operational rules and guidelines.

The **commercial** sector is highly regulated and controlled by the FAA currently through a process that entails applying for and receiving a Section 333 Exemption from the FAA with a blanket certificate of authorization (COA) to fly in the National Airspace (NAS). An exemption allows for the business use of a drone for specific purposes with clearly defined criteria. These criteria are listed below:

- Operation of the drone 200 feet or less above ground level
- Drone must be flown within visual line of sight (not from a tablet screen or monitor) during daylight hours only
- Between 2-5 nautical miles away from an airport or public heliport depending upon the capabilities of the facility (**note: hospital heliports were left out of the criteria which poses a major safety issue for air medical helicopters**)
- Drone weight of 55 pounds or less
- Registration of the drone with the FAA
- Sport or recreational pilot certificate and a valid driver's license

Public or governmental entities such as law enforcement, fire/EMS, emergency management, public universities, etc., must apply for a COA to use the drone for agency work such as surveying disaster sites, search and rescue, and research purposes. The COA is usually effective for one to two years.

Recreational or **hobbyist** operators make up the largest and most difficult to monitor and regulate group. When Congress enacted the 2012 FAA Reform and Modernization Act, recreational users were excluded from the rule making due to the excellent safety record of the remote controlled (RC) operator category into which the hobbyists fall. Hence they fall under:

- **Public Law 112-95 Section 336**

https://www.faa.gov/uas/media/Sec_331_336_UAS.pdf

- **Advisory Circular 91-75A**

http://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_91-57A.pdf

- **Academy of Model Aeronautics (AMA) Safety Code**

<http://www.modelaircraft.org/files/105.pdf>

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Recreational drones are becoming extremely popular and widely available for purchase as technology has improved and cost has dramatically declined since the first consumer drone, the Parrot AR, was introduced during the Consumer Electronics Show in 2010. It is estimated that nearly 1 million drones were sold in the U.S. by the close of 2015. In December of 2015 it was announced that all drone operators must register their drones by February 19, 2016. Over 350,000 have been registered thus far, leaving yet a large number not in compliance. On June 23, 2014, the FAA issued an interpretation of the law 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,” (in which drones are classified) including directives 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 drone operators flying within five miles of an airport/hospital heliport must notify the hospital or airport operator and air traffic control tower.

The FAA reaffirms that the Act’s model aircraft/drones provisions apply only to hobby or recreational operations and do not authorize the use of model aircraft for commercial operations. The notice provides examples of hobby or recreational flights, as well as examples of operations that would not meet that definition.

Registration is required for all drones that weigh between 0.55 pounds and 55 pounds, which exclude the category of "toy" drones but the FAA registration is purely under an honor, self-report system. Each owner is responsible to register their drone and failure to do so may result in regulatory and criminal sanctions. The FAA may assess civil penalties up to \$27,500. Criminal penalties include fines of up to \$250,000 and/or imprisonment for up to three years.

The FAA has also recently released a Smartphone app (currently available for IOS, with Android version in development) called B4UFLY that helps unmanned aircraft operators determine whether there are any restrictions or requirements in effect at the location where they want to fly.

Definitions:

Statue mile: 5280 ft

Nautical mile: 6076 ft

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