

# Safe Small Commercial Unmanned Aircraft Operating Rules

## INTRODUCTION

Manned commercial aviation is the world's safest mode of transportation with a record that continues to improve. Proficiency and professionalism are required to safely share airspace with highly trained pilots employing aviation rules and regulations that have been written over the history of manned aviation.

Advances in technology have resulted in the introduction of large numbers of small unmanned aircraft (UA), especially in populated areas. Commercial use is only expected to continue to expand. Many countries have adopted or are considering adoption of rules governing the operation of these new aircraft, also commonly referred to as unmanned aircraft systems (UAS), or "drones."

As used here we are referring to small unmanned aircraft weighing up to 25 kg / 55 lbs. These small UAS are actual aircraft and must be operated appropriately to avoid danger to other aircraft and the public.

## POSITION

IFALPA's position is that minimum safety standards should be adopted or considered when establishing rules and regulations governing the operation of small commercial UA. This is particularly applicable where airspace is shared with manned aircraft. Regulations and considerations should include the following:

### 1. OPERATING AUTHORITY

Commercial UAS operators should be required to obtain a grant of written authority from the regulator that includes specified operating conditions and limitations.

### 2. REMOTE PILOTS

- Education, training, licensing, certification, and recency requirements overseen by an appropriate governmental agency for commercial remote pilots.
- Qualification requirements for instructors and assessors.
- Maximum daily and cumulative flight and duty time limits and minimum rest periods for remote pilots.

- A prohibition on the operation of more than one unmanned aircraft at any time by a remote pilot unless there is advance written authorization from the regulator.

### 3. REGISTRATION, MARKING, AND REMOTE IDENTIFICATION OF UAS

- Each UAS, including the remote pilot stations, should be separately registered. If a certificate of airworthiness is unavailable, each UAS must be maintained in an airworthy condition for safe operation as specified by the regulator.
- A combination of electronic remote identification means and external registration markings that will permit authorities to promptly identify the aircraft and remote pilot station location and the operator.

### 4. OPERATIONS, SAFETY AND SECURITY

- A requirement to plan a route of flight that avoids airports, congested areas, public events, schools, sensitive and prohibited areas, and alternatives if the flight cannot be completed as planned.
- For any flight beyond visual line of sight of the pilot, a means to detect-and-avoid other aircraft validated by the regulator or a transfer to a secondary remote pilot station must be available.
- Visual observers, if required, must be trained by the operator and briefed on the operation by the pilot in command before each flight.
- Obstruction clearance limitations, airspeed limitations and distance limitations from persons, structures, and other aircraft covering takeoff, landing, and in-flight phases.
- Weather conditions not less than those that permit visual contact to be maintained with the UAS at all times and a prohibition of flight in icing conditions.
- Sufficient battery power or fuel for all flight phases.
- Pre-flight procedures to verify the safe operating condition of each aircraft before each takeoff, including the status of flight controls, auto-land capability, and installed equipment including communication, navigation, and geofencing systems pertinent to the planned route.
- Provision must be made for remote pilots to communicate with and obtain authorization from air navigation service providers for each flight in controlled airspace.
- For remote pilot stations, adequate communications equipment for the receipt of weather information and flight information such as notices to pilots, and communications with operational personnel or air navigation service providers as required by the operation that includes the ability to immediately stop or suspend operations. The pilot to aircraft interface

should audibly and visually alert the pilot to any degraded UAS performance, malfunction, or loss of a communication or control link.

- Procedures to cease flight when hazardous conditions arise, or communications or control become degraded, without causing danger to other persons.
- A requirement to remain clear of and give way to, manned aircraft at all times. This includes, but is not limited to, SAR (Search and Rescue) and HEMS (Helicopter Emergency Medical Service) operations, which take place in the lower airspace and are typically unscheduled.
- An operational parachute system or special safety considerations for operations over non-participants.
- A limitation on operations to the jurisdiction of the regulator unless prior approval is obtained.
- Standards and procedures covering the carriage of dangerous goods or hazardous materials.
- Security procedures, standards, training, and management should be robust. A security risk assessment should consider employees, location (including proximity to commercial airports), facilities and population centers, accessibility, technology, data links, and other relevant factors. There should be mandatory reporting of security breaches.
- Remote pilot stations and aircraft should be secured from threats of sabotage or unlawful interference, with access restricted to authorized personnel. Background checks should be conducted on persons with access to aircraft, operational facilities, or control stations.
- UAS data link equipment and software should be protected against threats and acts of unlawful interference, and a back-up system that will safely return or land the UAS at an appropriate site in the event of data link breach or failure should be installed on the UAS.
- Contingency and Emergency Response planning and procedures should be established.

## 5. REQUIRED DOCUMENTS AND RECORDS

- An approved aircraft flight manual for each unmanned aircraft that includes weight and operating limitations.
- Maintenance, alteration, and repair procedures maintained in approved manuals, and minimum equipment lists.
- A procedure to collect, maintain, and store specified operational data for each flight, aircraft times, maintenance records, and duty records for each pilot.

- Procedures for mandatory and voluntary safety reporting, collecting operational safety data, and conducting safety risk assessments of general operating procedures and specific operations including standard scenarios.
- Procedures for accident and incident reporting, and for the search, retrieval, and reporting of lost or overdue aircraft.
- Frequency spectrum authorization, as required.

## 6. WAIVERS

Waivers of requirements for commercial UAS should only be considered in specific cases under procedures specified by the regulator based upon a safety risk assessment, such as operations in airspace not utilized by manned aircraft, in very remote areas, or in cases of emergency.