



# Simplified standard procedure for the operation of unmanned aircraft or model aircraft for FPV races

Reference number: FOCA / 311.340-00022/00025

In deviation from the SORA approval procedure and based on Art. 18 para. 1 lit b of the Ordinance on Special Category Aircraft (OSCA), the following simplified standard procedure for FPV races is applicable for the operation of unmanned aircraft or model aircraft weighing up to 1 kg. An exception to the restrictions in accordance with Art. 17 para. 1 (constant direct eye contact) and Art. 17 para. 2 lit. c (operation within a radius of 100 metres from groups of people) of the OSCA is granted. In this context, observers ensure that the race course is monitored and actively communicate with the pilots. The following conditions apply:

## 1. Applicant

The applicant should enter his contact details here to facilitate communication in the event of any questions. The applicant is the organiser of the drone operation.

## 2. Details of planned operation

This information should provide as accurate a picture as possible of the planned operation.

### 1) **Exact location of operation (address/coordinates)**

The exact location information is required in order to be able to check the location of the operation. The address, the coordinates or both sets of information can be entered here.

### 2) **Date and time of operation**

Please enter the time and date of the operation. This information is required if the permit is to be issued.

### 3) **Purpose of operation**

Please state the aim / end product of the drone operation.

### 4) **Number of pilots**

Please enter the expected number of pilots who will participate at the entire event.

## 3. Details of model

This section addresses the type of drone to be used.

Please check the box beside the type of drone to be used in the FPV race. If the model you are using is not listed, please specify it in writing.

### 1) **Mono-wing**

These are also known as “fixed-wing drones”. They have a wing similar to that of an aircraft.

### 2) **Multi-copter**

These drones have several propellers which function in the downward vertical plane.

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**3) Other**

Please specify in more detail.

## **4. Specific details of planned operation**

**1) Local civil and military aerodromes/heliports and their approach routes are known**

The location of the operation must correspond to the [drone map of Switzerland](#).

**2) Drone operation will take place outside the 5 km perimeter of a civil or military aerodrome/heliport**

If the operation takes place in a zone with restrictions or a prohibited zone according to the [drone map of Switzerland](#), a separate permit must be obtained from the competent authority before submission of this application for a permit. The competent authority may impose further conditions.

The FOCA cannot issue approval without a corresponding permit from the responsible aerodrome.

**3) I am aware that operation in the vicinity of deployed emergency services is not permitted**

Flying a drone over the scene of an accident to take aerial pictures may impede a rescue helicopter from approaching the site. In addition, emergency services feel that their work is disturbed by drones.

Operation in the vicinity of deployed emergency services is not permitted.

**4) I understand the cantonal and municipal regulations and will comply with them throughout the operation**

Each canton has the right to issue its own regulations for drones. These can be stricter than those of the federal government and must be observed.

**5) I understand the requirements of data protection and protection of personality and will comply with them throughout the operation**

The operation of drones is governed by the [Data Protection Act](#) and the right to privacy, which is enshrined in Swiss civil law. You should therefore never fly your drone low over private property or public sites where people gather.

## **5. General operating conditions**

**1) The overflown area, the overflown persons and the airspace in which the operation takes place are under the control of the organiser and the crew**

A permit can only be issued if both the persons overflown, the ground area overflown and the airspace in which the operation takes place are under the control of the pilot and his crew.

Persons under the control of the event organiser / race management are defined as:

- a) Persons directly involved in the running of the race.
- b) Persons under the control of the organiser or race management who may be required to follow safety advisories and instructions in order to avoid unexpected interaction with the aircraft. Such persons include safety personnel and other instructed persons with essential tasks during the races.

Persons under the control of the operator must:

- a) voluntarily decide to take part in the event and agree to be overflown by a drone.
- b) understand the risk they face from the operation of the drone.

Requirements to ensure safe separation from manned aircraft:

- a) Operations within 5 km from a runway of a civil or military aerodrome may only be approved in coordination with Skyguide or, if this is not possible, the air traffic controller himself. The competent authority may impose further conditions.
- b) Manned aircraft have priority. If a manned aircraft approaches, all unmanned aircraft must immediately abort their flights.

**2) Access to the race course / safety zone for persons outside the control of the organiser or the race management is blocked**

Persons not under the control of the race management are not permitted to enter the race course or safety zone.

- 3) **There is evidence of the agreement of both the local authorities and the land owner that the race may be conducted**  
A permit can only be granted if both the local authorities and the land owner have given their consent that the races can be held.
- 4) **Spectators are screened from the race course either with a safety net (minimum height of 5 m) or a closed cage**  
The race course or spectators are surrounded by:
  - a) a safety net (minimum height of 5 m) or
  - b) a closed cage.
- 5) **Between the net or cage and the audience is a safety zone at least 1.5 m wide, which is secured with barriers**  
In addition to the net or cage, barriers must be used to create a safety zone of at least 1.5 metres in size. Only persons under the control of the organiser or race management may enter this area.
- 6) **Measures have been taken to ensure that operation of the unmanned aircraft takes place only within the enclosed race course**  
Operation of the unmanned aircraft is only permitted within the enclosed race course.
- 7) **The selected flight height and the race course flown prevent overflying the safety net**  
The drones may not fly above the height of the safety net. The flight route must be determined in such a way that it is impossible to fly higher than the height of the net.
- 8) **The max. flight height is lower than the height of the net**  
The drones may not fly above the height of the safety net. The flight route must be determined in such a way that it is impossible to fly higher than the height of the net.
- 9) **During the flights, the pilots stay in a zone in which they are not distracted by external influences**  
To ensure safe operation of the drones, the pilots must not be disturbed by spectators or unauthorised persons while performing their piloting activities and must not be exposed to any other distractions.

## 6. Aircraft requirements

This concerns information with specific regard to the aircraft and planned operation.

- 1) **The propellers are not made from metal**  
The propellers may not be made from metal. The propellers may only be made from metal if they are sufficiently protected from external contact. This protection must be photographed and attached to the application.
- 2) **The maximum take-off weight (including batteries) is 1 kg**  
The maximum take-off weight (incl. batteries) of the individual drones must not exceed 1 kg.
- 3) **The batteries consist of a maximum of 6 cells, each 25.5 Volts**  
If brushless DC motors are used, the batteries must have a maximum of 6 cells, each 25.5 Volts.
- 4) **A fail-safe mode is available**  
The drone must have a fail-safe mode which can immediately stop the motors.
- 5) **The fail-safe mode is activated in the following situations:**
  1. **Automatically in the event of loss of the control link for more than one second**
  2. **Automatically when the pilot station is switched off**
  3. **The fail-safe mode can be activated manually**

In the first two cases, the fail-safe mode must be activated automatically. As well as allowing automatic activation, it must also be possible to manually activate the fail-safe mode at any time.

- 6) **One of the following frequency ranges is used for the control: 2.4 GHz, 868 MHz or 915 MHz**

Other frequencies are not permitted.

## 7. Requirements for pilots and crew

Information regarding pilots and crew

- 1) **The pilots are familiar with the stability of the drone and its behaviour. The pilots have more than 12 hours of flying experience with a drone or on a simulator and are familiar with the standard and emergency procedures**

The pilots must be familiar with the stability of the drone and its behaviour. The pilots must have more than 12 hours of flying experience with a drone or on a simulator and must be familiar with the standard and emergency procedures.

## 8. Emergency procedures

Please provide a description of the emergency procedures. Please describe these in detail and in complete sentences.

- 1) **What are the emergency procedures if persons are injured?**

What is the reaction? Who is to be informed? How is the information to be communicated? Who is to fill out the occurrence report by means of aviation reporting?

- 2) **What are the emergency procedures in the event of a “fly-away” from the race course?**

What is the reaction? Who is to be informed? How is the information to be communicated? Who is to fill out the occurrence report by means of aviation reporting?

- 3) **How is the coordination between race management, pilots and observers guaranteed?**

Please provide a description of the coordination between the race management, pilots and any observers. The communication channels between the race management and pilots for immediate aborting of the flight as well as any other necessary communication channels between the different parties must be described.

- 4) **The communication latency between the observers and the pilot is less than 15 seconds**

The delay time of the communication channels must not exceed 15 seconds. This is to ensure that communication does not take too long in an emergency.

- 5) **What are the emergency procedures for incoming air traffic?**

What is the reaction? Who fills out the occurrence report by means of aviation reporting in the event of a collision or near-collision?

- 6) **What are the emergency procedures in the event of a fire or battery explosion?**

In the event of a fire or explosion of one of the batteries, every pilot must have a clear procedure for what to do. Please provide a detailed description here. This includes the questions of what to do, who must be informed and what else must be done by any persons other than the pilots.

## 9. Information on limits

The limits specified in this section must be observed.

- 1) **Flying in icing conditions is not permitted (outside air temperature < 5°C in visible humidity).**

Low temperatures can strongly influence the flight characteristics of the drone. A combination of low temperatures and rapidly rotating propellers can cause ice to form above 0°C. Ice can render a drone uncontrollable.

- 2) **Maximum wind: 20 km/h; max. gusts: 30 km/h.**

Always consult the current weather conditions before the flight and inform the relevant persons.

- 3) **Flying in rain, snow or hail is not permitted.**

Always consult the current weather conditions before the flight and inform the relevant persons.

## **10. Third party liability insurance**

Flights may only be operated if the liability claims of third parties on the ground are secured by the operator with a minimum guaranteed cover of CHF 1 million by taking out a third-party liability insurance policy in accordance with Art. 20 of the Ordinance on Special Category Aircraft (OSCA, SR 748.941).