

# **KASAU CUP – DRONE RACE RULE**

## **Modified F3U (PROVISIONAL CLASS) - RC MULTI-ROTOR FPV RACING**

Multi-rotor FPV (First Person View) Racing consists of several multi-rotor model aircraft flying together through a closed racing circuit.

The generic term 'model' will be used in the present document.

Each model is operated by an FPV pilot who is considered as the competitor. The FPV pilot may be assisted by a helper.

The FPV pilot is equipped with a headset goggle (or with a screen) which allows him to pilot his model from the video picture of the onboard camera which is transmitted in real time on headset goggle (or on his screen).

### **1. GENERAL SPECIFICATIONS OF THE FPV RACING MODEL**

Only multi-rotors corresponding to the following specifications are allowed.

**Note:** *A multi-rotor is a rotary wing radio-controlled model aircraft equipped with at least three power driven propeller devices.*

A 1 % tolerance is applicable for inaccuracy of the measurement devices for size, weight and batteries tension.

Any automatic system to level back the model after a crash is forbidden.

In order to provide for the public the best view of the models during the races and to facilitate the task of the judges, each model must be clearly recognisable with, for example, a brightly coloured part of the frame or a custom canopy. Bright changeable LED RGB color must be placed below all arms for pilot identification

#### **1.1. Weight and size of the model**

The total weight of the model including all equipment necessary for flight (including batteries) shall not exceed 1 kg.

Distance between axes of the engines shall be less than 330 mm. This distance is measured on the diagonal of the engines' axes.

#### **1.2. Motorization**

Only electric motors with a maximum voltage of 17.0 volts (4S) are allowed. The voltage measurement is done before the flight.

A maximum fixed tilt angle (motor) of 15° to the perpendicular of the horizontal flight line of the frame is allowed.

On a tri-copter, the inclination of an engine in flight is only allowed with the yaw order.

#### **1.3. Propellers**

Maximum diameter: 6 inches (15.2 cm).

Full metal propellers are forbidden.

Any propeller protection device is forbidden.

#### **1.4. Other equipment**

The model must be equipped with a fail-safe device, the triggering of which stops the motorization.

It is forbidden to use a pre-programmed manoeuvring device. Any system for automatic positioning and/or path rectification in longitude, latitude or height is forbidden.

Must provide 5V DC power to supply transponder unit (transponder provided with terms & condition).

Not allowed to use personal transponder except certified by or from IDRF.

#### **1.5. Identification marks**

Identification number will be given during registration and must be placed in the frame.

#### **1.6. Frequencies**

Frequencies used can only be those authorised in the country in which the contest is organised. Ensuing associated emission power limitations should be respected.

This concerns the radio control system of the model as well as the video transmission device of the onboard camera.

Concerning the radio control system: systems using 2.4 GHz spread spectrum technology can only be used.

Any competitor using a forbidden frequency shall be disqualified from the contest.

Only used 5.8 GHz race band frequencies for video transmission with maximum 200mW VTX powers allowed, maximum 25% tolerance (max 250mW) after scrut.

### 1.7. Model Scrut and Quarantine

Each model that will use in race, will be scrut and than quarantine afterwards. FPV pilot will not able to use except for official race only. VTX Power, Battery, Failsafe Prochedure and all other specification mentioned before will be checked.

*Source: SC4 Vol F3 FPVRACING 17 - Page 11 ([www.fai.org/downloads/ciam/SC4\\_F3FPV\\_2017](http://www.fai.org/downloads/ciam/SC4_F3FPV_2017))*

### 2. FAULTS DURING OFFICIAL FLIGHTS

In case an air gate or an obstacle that needs to be crossed is not effectively crossed, the pilot may try to execute a manoeuvre to cross the air gate or the obstacle again. If during this manoeuvre the pilot has a collision with another model, he will be disqualified and his result for that flight will not be validated. If the pilot does not cross an air gate or an obstacle to be crossed, the corresponding circuit lap will not be validated by the judge.

In case of a circuit cut (for example during a turn), the competitor may execute as soon as possible a manoeuvre to come back into the circuit where he left it. If during this manoeuvre the pilot has a collision with another model, he will be disqualified and his result for that flight will not be validated. If the judge considers that the competitor has not made the manoeuvre with sufficient urgency, he can decide that the corresponding circuit lap is not validated.

In case of a circuit exit (crossing of the safety line), the competitor is disqualified. A disqualification can also be ruled when it is considered that safety is breached.

In the case of an indoor circuit with numerous structural elements or a circuit in woods, for which doing a U-turn because of missing an obstacle or making a circuit cut can be a problem for safety; methods described above may be replaced by time penalties added to the result of the flight and by circuit lap penalties. The penalties for faults (air gate not crossed or obstacle\* not crossed or circuit cut\*\*) are defined as follows:

- False start fault: 5 seconds
- 1st fault: 5 seconds.
- 2nd fault: 10 seconds (in addition to the 1st time penalty).
- 3rd fault : 15 seconds (in addition to the previous time penalties).
- Deliberately attacking or crashing into competitor: 10 seconds ~ DNF (judges decision).

When the judge considers that a circuit cut is a voluntary cut to reach the finish line faster, then he can decide that the corresponding circuit lap is not validated rather than to give a time penalty for the fault. When this system of time penalties is used, all flights need to be timed.

**Note:** Both systems (requirement of a manoeuvre and time penalty) cannot be mixed.

When a model crashes, the competitor can go on again if he is in a situation to do so. However, the judge in charge of the competitor can request him to stop the flight if he considers that the model no longer meets acceptable safety standards. When the model cannot go on, it must stay on ground with engines cut off until the end of the race: the competitor cannot request a reflight.

\* Obstacle in this race is a 2 dimension gate.

\*\* Not following circuit path (circuit not shown in fpv display) will categorized as fault : 10 seconds.

*Source: SC4 Vol F3 FPVRACING 17 - Page20-21 ([www.fai.org/downloads/ciam/SC4\\_F3FPV\\_2017](http://www.fai.org/downloads/ciam/SC4_F3FPV_2017))*

Other Rules and regulation will follow **F3U (PROVISIONAL CLASS) - RC MULTI-ROTOR FPV RACING** unless stated above.