

**CLASS F3P – RADIO CONTROL INDOOR AEROBATIC AIRCRAFT**

**5.9. CLASS F3P – RADIO CONTROL INDOOR AEROBATIC AIRCRAFT**

**Class F3P contains F3P-Aerobatics (schedules F3P-AA,-F3P-AP, F3P-AF)and F3P- Aerobatics Freestyle to Music (F3P-AFM).**

**F3P-AP/AF and F3P AFM will be flown on Category 1 events**

**5.9.1 Definition of an R/C Indoor Aerobatic Aircraft**

A model aircraft, but not a helicopter, which is aerodynamically manoeuvred in attitude, direction, and altitude by a pilot on the ground using radio control. Variable thrust direction of the propulsion device(s) is not allowed except for F3P-AFM

General Characteristics of Radio Controlled Aerobatic Model Aircraft shall be verified in processing procedures as per FAI Sporting Code, Section 4, Volume CIAM General Rules, for each participating model aircraft prior to a competition. Not permitted equipment must not be installed.

**5.9.2. General Characteristics of Radio Controlled Aerobatic Models:**

Maximum overall span **1500 mm**

Maximum overall length **1500 mm**

Maximum total weight, with batteries 300 g

External parts that protrude which could be considered dangerous, (ie landing gear struts, shaft tips etc) must be covered in order to avoid injuries.

- a) A tolerance of 1% will be allowed for possible inconsistencies in measurement instruments for size, weight unless otherwise stated.
- b) Power device limitations: any suitable power device may be utilised except those generating any kind of exhaust emission.
- c) The propulsion device(s) must automatically shut-off or fully idle at the moment an R/C signal failure occurs.
- d) Radio equipment shall be of the open loop type (ie no electronic feedback from the model aircraft to the ground except for the stipulations in CIAM General Rules C.16.2.3). Auto-pilot control utilising inertia, gravity or any type of terrestrial or non terrestrial reference is prohibited. Automatic control sequencing (pre-programming) or automatic control timing devices are prohibited.

Example:

Permitted:

1. Control rate devices that are manually switched by the pilot.
2. Any type of button or lever, switch, or dial control that is initiated or activated and terminated by the competitor.
3. Manually operated switches or programmable options to couple and mix control functions.

**Not permitted:**

1. Snap roll buttons with automatic timing mode.
2. Pre-programming devices to automatically perform a series of commands.
3. Auto-pilots or gyros for automatic wing levelling or other stabilisation of the model aircraft.
4. Automatic flight path guidance.
5. Propeller pitch change with automatic timing mode.
6. Any type of voice recognition system.
8. Any type of learning function involving manoeuvre to manoeuvre or flight to flight analysis

**5.9.3. Definition and Number of Helpers**

A helper may be a Team Manager, another competitor, or an officially registered supporter. Each competitor is permitted one helper (usually the caller) during the flight. One person, ei-

ther a helper, or the team manager, or the caller, may place the model aircraft for take-off and retrieve the model aircraft following the landing. Physically disabled competitors requiring an additional helper and/or caller or other assistance, must request permission with full details, with their entry, from the organiser of a championship. This additional assistance must be provided by the competitor, must not give him an unfair advantage over other competitors, and must not unduly delay or interfere with the running of the competition. Except for communication between the caller and the competitor, no other performance-enhancing communication with helpers is permitted during the flight.

#### 5.9.4 **Number of Flights**

Competitors have the right to the same number of flights. Only completed rounds will be counted.

#### 5.9.5 **Definition of an Attempt**

There is an attempt when the competitor is given permission to start.

If the propulsion device fails after the model aircraft becomes airborne, the attempt will be deemed complete.

#### 5.9.6 **Number of Attempts**

Each competitor is entitled to one attempt for each official flight.

**Note:** An attempt can be repeated at the contest director's discretion only when any unforeseen reason beyond the control of the competitor, causes the model aircraft to fail to start (eg there is radio interference). Similarly, in a flight that is interrupted by any circumstance beyond the control of the competitor, the competitor is entitled to a reflight, with the entire schedule being flown and judged, but only the affected manoeuvre and the unscored manoeuvres that follow will be tabulated. This reflight should take place within 30 minutes of the first flight, in front of the same set of judges, or be the first flight after the judges' break, or, if it involves a protest, as soon as the FAI Jury has deliberated and communicated the outcome of the protest to the contest director. The result of the reflight will be final.

#### 5.1.7. **Definition of an Official Flight**

There is an official flight when an attempt is made whatever the result.

#### 5.9.8 **Marking**

- a) Each judge has to assess each manoeuvre and any other relevant action of the competitor individually and independently from the other judges. The criteria for judging *the F3P-AA, F3P-AP and F3P-AF Aerobatics* schedules are contained in the Description of Manoeuvres (Annex 5M) and in the Manoeuvre Execution Guide (Annex 5B). **For F3P-AFM see Annex 5M Manoeuvres – Schedule F3P-AFM**
- b) Each **F3P-AA, F3P-AP, F3P-AF** manoeuvre may be awarded marks, by each of the judges during the flight. Every manoeuvre starts with the mark of 10 points and will be downgraded for each defect during the execution of the manoeuvre in one or multiple 0.5 point steps, depending on the severity of the defect. The remaining points result in the mark for the manoeuvre. During tabulation, these marks are multiplied by a coefficient (K-Factor) which relates to the difficulty of the manoeuvre.
- c) Any manoeuvre not completed, or flown out of sequence with the stated schedule shall be scored zero (0). Zero scores need not be unanimous, except in cases where an entirely wrong manoeuvre was performed. Judges must confer after the flight in these cases, bringing it to the attention of the flight line director/contest director on site.
- d) Take-off and landing procedures are not judged and are not scored.
- e) The manoeuvring area is limited by the floor, ceiling, and walls of the hall, as well as by the safety line which is parallel to the longest wall of the hall and in front of the judges. A model aircraft must never cross this safety line. **Otherwise the whole flight will be scored ZERO.** The centre line of the manoeuvring area stretches from the safety line (perpendicular) to the opposite long wall, and is positioned in the middle between the side walls. The competitor is normally placed on the intersection of the safety line and the centre line.
- f) The recommended dimensions of the hall should be about 40 x 20 metres in length and width and between 8 to 12 metres in height

- g) **Centre manoeuvres should be performed such that equal amounts of the manoeuvres are on each side (left and right) of the centre line** with turn around manoeuvres at the left or right of it. Infractions of this rule will be cause for downgrading by each judge individually and in proportion to the degree of infraction. Manoeuvres must be performed such that they can be seen clearly by the judges. If a judge, for some reason beyond the control of the competitor, is not able to follow the model aircraft through the entire manoeuvre, he may set the "Not Observed" (N.O.) mark. In this case, the judge's mark for that particular manoeuvre will be **the average of the numerical marks with 2 digits after the decimal point rounded up**. If no such average is achievable, the competitor has the right for a reflight as per paragraph 5.9.6. If, for some reason within the control of the competitor, a judge is not able to follow the model aircraft through the entire manoeuvre, he has to downgrade the manoeuvre accordingly.
- h) Aerobatics Freestyle to Music (**F3P AFM**) are judged for ***Precision and Accuracy, Complexity, Harmony of Flight to Music, Utilization of Manoeuvring Area and Special Effects***, in marks of half number increments between **0 to 10** by each of the judges for the overall flight. as described in ***Annex 5M Manoeuvres – Schedule F3P-AFM***.
- i) Judges shall be seated on a line parallel to the longest wall of the hall and in the middle between its side walls, while viewing the opposite longest wall. **A raised platform for judges is recommended.**
- j) If a model aircraft is, in the opinion of the judges, unsafe or being flown in an unsafe or inappropriate manner, they may bring this to the attention of the flight line director, who may instruct the pilot to land.
- k) The individual manoeuvre scores given by each judge for each competitor must be made public at the end of each **flight** of competition. The team manager must be afforded the opportunity to check that the scores on each judge's score document correspond to the tabulated scores (to avoid data capture errors). The score board/monitor must be located in a prominent position at the flight line, in full view of the competitors and the public.

#### 5.9.9 Classification

- a) **For World and Continental Championships, each competitor will have four (4) preliminary flights for F3P Aerobatics with schedule F3P-AP, for F3P-AFM with competitors F3P-AFM schedule with the best three normalised scores to determine the preliminary ranking. The top 30% (thirty percent) of the classified F3P AP competitors with a minimum of ten (10) will have three (3) additional flights. These final flights will be flown as a known, finals schedule (schedule F3P-AF) for F3P Aerobatics Championship The total of the best three preliminary flights of the finalists (normalised again to 1000 points) will count as one score. This score and the finals scores will give four (4) normalised scores. The sum of the three best will give the final classification. In the case of a tie, the sum of all the four (4) scores will determine the winner.**

**For F3P AFM Championship the top 30% (thirty percent) of the classified F3P AFM competitors with a minimum of ten (10) will have four (4) additional flights as described in Annex 5M Manoeuvres – Schedule F3P-AFM. The best of flight schedule 1 plus the best of schedule 2 will count for final ranking.**

**Note 1:** Final flights to determine the individual winner are only required for World and Continental Championships for **F3P Aerobatics (F3P-AP/F3P-AF)** and F3P-Aerobatics Freestyle to Music (**F3P-AFM**).

- b) The team classification in F3P Aerobatic is established at the end of the competition (after the finals) by adding the numerical final placing of the best three team members of each nation. Teams are ranked from the lowest numerical scores to the highest, with **complete three-competitor teams, ahead of two-competitor teams, which in turn are** ranked ahead of one-competitor teams. In the case of a tie, the best individual placing decides the team ranking. ***For F3P AFM there will be no team ranking.***

All competitors matching the junior definition as per CIAM General Rules C.15.6.1 are ranked in an additional junior classification.

- c) For World and Continental Championships, the scores for all rounds preliminary, semi-finals and finals, will be computed using the Tarasov-Bauer-Long (TBL) statistical averaging scoring system. Only computer tabulation systems containing the TBL algorithm and judge analysis programs that have been Subcommittee approved can be used at

World and Continental Championships. **To be eligible for approval a computer tabulation system has to be tested as recommended by the CIAM F3 Aerobatics Subcommittee Scoring Software Working Group.**

- d) All scores for each round, preliminary, semi-final and finals, will then be normalised as follows. The average score of the top half of competitors flown in front of a particular group of judges (ie a round) shall be awarded 1000 points. The remaining scores for that group of judges are normalised to a percentage of the 1000 points in the ratio of actual score over this average score.

$$\text{Points}_x = \frac{S_x}{S_w} \times 1000$$

$$\begin{aligned} \text{Points}_x &= \text{points awarded to competitor } X \\ S_x &= \text{score of competitor } X \end{aligned}$$

**SW = average score of top half of competitors of round**

*Note 1: Final and semi-final flights to determine the individual winner are usually only required for World and Continental Championships. For open international events, national championships, and domestic competitions, the total of the three best preliminary flights out of four or the best two out of three may be used to determine the individual winner and team placing. Flights of Schedule F may be incorporated depending on local circumstances and the time available.*

#### 5.9.10 Judging

- a) For each competition in F3P, there must be a minimum of three (3), and a maximum of five (5) judges, plus one timer.
- b) For larger events, there might be several panels of judges.
- c) For World or Continental Championships the organiser must appoint one or more panels of five judges each. The judges must be of different nationalities. Those selected must reflect the approximate geographical distribution of teams having participated in the previous World Championships and the final list must be approved by the CIAM Bureau. At least one third, but not more than two thirds of the judges must not have judged at the previous World Championship. Judge assignment to the panels will be by random draw.  
In the case of more than one panel of judges, the panels may be combined for final rounds of flights.
- d) The invited judges for World or Continental Championships must be selected from the applicable list of current or upcoming approved FAI international judges and must have had a reasonable amount of F3P or F3A judging experience and must submit a resume of his judging experience to the organiser when accepting the invitation to judge at a World or Continental Championship. The organiser must in turn submit the resumes to the CIAM Bureau for approval.
- e) To avoid errant judging, it is recommended that training flights be performed, before the beginning of official flying. These training flights are judged and tabulated according to the regulations, but the results are not made public.

#### 5.9.11. Organisation for Radio Controlled Aerobatics Contests

- a) Members of a National team, who have processed only one model aircraft each, may make use of the second model aircraft processed by another member of the same team. However, once that model has been used by a team member in that competition, it may not be used by any other competitor. If that team member did not process the model aircraft in the first place, then it must be re-registered and re-marked appropriately. This is the responsibility of the team manager.
- b) Only spread spectrum radio control systems are allowed.
- c) The flight order will be established by random draw, Team members will not be drawn to fly directly after each other. Competitor identification numbers will only be assigned after this flight order draw, in numerical ascending order.
- d) For flights two, three and four of the preliminary rounds the flight order will start  $\frac{1}{4}$ ,  $\frac{1}{2}$  and  $\frac{3}{4}$  down the flight order respectively. Organisers must take care to avoid a flight draw which will cause competitors to fly at approximately the same time each day.
- e) The flight order for the first round of the finals in **F3P Aerobatics** will be established by a random draw as above. The flight order for flights two, and three will start  $\frac{1}{3}$  and  $\frac{2}{3}$

down the finals flight order with decimals rounded-up.

**The flight order for the first round of the finals in F3P AFM will be established by a random draw as above. The flight order for flights two, and three and four will start 1/4, 2/4, 3/4 down the finals flight order with decimals rounded-up.**

- g) Competitors must be called by a flight line official at least five minutes before they are required to occupy the starting area.
- h) For F3P AA, F3P-AP and F3P-AF a competitor is allowed one (1) minute of starting time for connecting battery and checking radio equipment and five (5) minutes of flying time for each flight. Before the flight the model aircraft shall be placed in a starting box behind the safety line. The timing of an attempt starts when the contest director, or timekeeper, gives an instruction to the competitor to start and the 1-minute starting time begins. The starting time ends at the expiration of the 1-minute or when the model aircraft is removed from the starting box. If the model aircraft is not removed from the starting box by the expiration of the 1-minute starting time, the contest director/time keeper will advise the competitor and helper that the flight may not proceed. The flight shall score zero points. The openly displayed timing device/clock will be re-started to count the 5-min flying time when the model aircraft has been placed in take off position beyond the safety line in the flying zone.**
- i) With the expiry of the 5-minute flying time, the scoring will cease. The contest director/time keeper will advise the pilot, helper, and the judges of the expiry of the 5-minute flying time. The clock will be stopped when the wheels of the model aircraft touch the ground for landing, as proof to the competitor of the recorded time.**
- j) For F3P AFM a competitor is allowed one (1) minute of starting time for connecting battery and checking radio equipment. Then he has to place the model to a take off position beyond the safety line and may take off. Music starts when the competitor has signaled his wish to start the music to the operator of music. This has to be done within the first thirty (30) seconds after take off. The duration of the music must be 120 +/- 5 seconds. Judging of the flight starts with the beginning of the music, the flight ends at the stop of the music, or 125 seconds after the music had started. The model has to be landed immediately after the music has ended.**
- k) The competitor may not start his model aircraft unless he has been instructed by a flight line official to do so. Deliberate starts at the flight line during official flying to check the propulsion device will be subject to disqualification from that round. No public address or commentary should be made during flights.
- l) During the flight, the pilot and his helper/caller (if required) must stay in the designated position in front of the judges. The pilot must wear or display his identification/start number.

#### 5.9.12. **Execution of Manoeuvres F3P Aerobatics (Schedule F3P-AA, F3P AP, F3P-AF)**

- a) In the preliminary flights (schedule F3P-AP) and the finals flights (schedule F3P-AF), the manoeuvres must be executed during an uninterrupted flight in the order that they are listed in the schedule. The competitor may make only one attempt at each scored manoeuvre during the flight. The direction of take-off is the pilot's choice. The direction of the first manoeuvre determines the direction of all following manoeuvres.**
- b) The model aircraft must take-off and land unassisted, that is, no hand launched flights. If any part of the model aircraft is dropped or if it comes to stand still during the flight or being hung up on a wall or ceiling, scoring will cease at that point and the model must be landed immediately.**
- c) In schedules with turn around manoeuvres, there is no unjudged flying between the first manoeuvre after the take-off and the last manoeuvre before landing.**
- d) If the model aircraft touches the floor, ceiling, walls, or any structures or fixtures of the hall, this manoeuvre is scored ZERO.**

#### **F3P Freestyle Aerobatics to Music (F3P-AFM)**

- g) The model aircraft must take-off and land unassisted, that is, no hand launched flights.**
- h) If the model crosses the safety line the whole flight will be scored Zero.**

- i) Judging is done for the entire flight, without interruption.**
- j) If the model crashes and is not able to restart before one minute is over there will be no score. If the model will be landed/crashed before the stop of the music, or 125 seconds there will be the following downgrades for all F3P AFM Judging Criteria except special effects:**
- |   |                            |
|---|----------------------------|
| <b><u>Time after starting music between 60 and 71 seconds</u></b>   | <b><u>- 5 points -</u></b> |
| <b><u>Time after starting music between 72 and 83 seconds</u></b>   | <b><u>- 4 points</u></b>   |
| <b><u>Time after starting music between 84 and 95 seconds</u></b>   | <b><u>- 3 points</u></b>   |
| <b><u>Time after starting music between 96 and 107 seconds</u></b>  | <b><u>- 2 points</u></b>   |
| <b><u>Time after starting music between 108 and 119 seconds</u></b> | <b><u>- 1 point</u></b>    |