

## **CLASS F5L – RADIO CONTROLLED THERMAL GLIDERS RES WITH ELECTRIC MOTOR AND AMRT**

### **5.5.12.1 General Rules**

F5L is a class for radio-controlled 2-axis gliders with an electric motor and a logger.

F5L class is similar to F3L one and differs only by the starting procedure with an electric motor instead of a bungee.

The models feature a maximum two (2) meter span, are primarily of wooden construction and are controlled by rudder, elevator and spoiler(s). For launching, the electric motor may run 30 sec. Due to the restrictions on construction and equipment, it will be possible to participate in competitions at low costs and with average skills. One key aspect of this class is to inspire young modellers and integrate them into the sport. The rules that follow shall be understood and interpreted with this in mind.

### **5.5.12.2 Definition of a Radio-Controlled Glider**

A model aircraft whose lift is generated by aerodynamic forces acting on surfaces remaining fixed. In F5L class, the electric motor serves only for the launch.

The competitor must control the model from the ground using radio control.

### **5.5.12.3 Model Specifications for Radio Controlled Thermal Gliders F5L**

A model typically consists of wings, fuselage and tail. Flying wing models that do not have a fuselage and rudder or vertical stabilizer or none of these components are also allowed if they have only two (2) control surfaces. Each of these surfaces has to be actuated by only one servo. Otherwise, the construction rules for conventional models described herein are applicable.

#### **5.5.12.3.1** The model is build-on mainly with wooden parts. The following methods are permitted:

- a) Wings built with ribs, open or covered by wood, „D-box“, solid wood wings or a combination of solid wood and ribs.
- b) All parts must be made from wood except for the leading edge, spar(s) and connecting parts of the wing panels and the motor mount frame.
- c) The surface of the wings may be covered by film, silk, paper or polyester fabric.  
Specifications a) to c) are applicable for the tail planes too.
- d) The space between the rear edge of the spoilers and the trailing edge must be at least 5 cm. One or two servos may activate the spoilers.
- e) The fuselage must be made entirely from wood or with a tail boom made from fibreglass/carbon (GRP/CFRP), Kevlar tube, or profile. The tube/profile must not extend the front half of the wing area.
- f) The wooden surface of the fuselage may be covered with fibreglass/carbon (GRP/CFRP) or Kevlar, but not more than a maximum of 1/3rd of the total area. The surface may be protected with varnish or like described in c).
- g) Hinges and control rods are exempted from the GRP/CFRP constraint.
- h) The selection of the electric motor is free.
- g) The selection of battery is free

#### **5.5.12.3.2 Not allowed is the use of**

- a) positive or negative moulds for construction of the fuselage or wings or the surface treatment.
- b) a fixed or retractable arresting device (i.e. bolt, sawtooth-like protuberance, etc.) to slow down the model on the ground during landing. The underside of the model must not have any protuberances.

- c) a fuselage nose with a radius less than 5 mm.
- d) ballast not carried internally and fastened securely within the airframe.
- e) any telemetry except for radio signal strength, receiver temperature and battery voltage. No variometer is permitted.
- f) any telecommunication between competitor and helpers, including mobile phones or walkie-talkies.

#### 5.5.12.4 Description of the Competition

- a) In competition, at least four (4) qualifying rounds shall be flown. For each qualifying round, participants shall be divided into flight groups. The results of each flight group shall be normalized to arrive at comparable scores between the flight groups. The highest score within each flight group will be assigned 1000 points, and the remaining scores within that group shall be proportional to each participant's raw flight score relative to the best raw flight score within that group. The group size in the "Fly-Off" shall be the same as in the preliminary rounds. Participants flying with the highest total normalized scores from the preliminary round will compete in a "fly-off" (minimum 2 rounds) to determine the final classification.
- b) The competitor may use three (3) models in the contest. The competitor may change models at any time, but within a round only if the model used first is placed within a radius of 15 meters of the assigned landing spot.
- c) The competitor may use up to two (2) helpers. These assist him in launching and retrieving the model, informing him of weather conditions and flight time and managing the start.
- d) The organizer should have official scorekeepers/timekeepers available. If this is not the case, the pilot's helper will keep time, and the organizer will regularly sample the flight times. Deviations of more than three (3) Seconds in favour of the participant shall lead to a zero-score flight.

#### 5.5.12.5 The flying Site

- a) The competition must be held on a site having reasonably level terrain, which will minimise the possibility of slope and wave soaring.
- b) There must be marked start/landing spots for each competitor at least eight (8) meters apart. Take-off should happen within two (2) meters of the assigned start/landing point. This rule also applies when starting again.
- c) The distance between the fuselage nose and the landing point will be measured by a tape or string, which may be fixed at the landing point.
- d) The Contest Director shall determine the landing boundaries. Landing outside the boundary shall result in a zero score for that flight. (see also 8.2).

#### 5.5.12.6 Interruptions

- a) The contest director can interrupt the competition and reset the start/landing points.
- b) The contest shall be interrupted by the contest director if the weather conditions for the models are no longer reasonable.

#### 5.5.12.7 Launching

Starting is after the beginning of the frame time with the electric motor running.

For designs that do not permit a safe start with the motor running (e.g., wing-mounted aircraft with rear-mounted motor), the motor is switched on as soon as possible after the launch, and the time begins when the motor is switched on.

The motor runtime (30 sec) and the starting height (90m) are limited by an EDIC-approved e-logger (e.g., Altis V4, Altis V4+, Altis Micro, Altis Nano etc). The organizer should check the settings of the AMRT before the competition. The organizer can check the AMRT at any time after a flight. The flight is recorded as a zero score if the settings differ from the pre-sets.

Requirements for the AMRT:

- a) Time and altitude shutdown.
- b) No telemetry during competitive flight.
- c) No change in the setting values via the transmitter.
- d) Storage of the (last) flight with switch-on and switch-off point (altitude and time) of the electric motor.
- e) it shall be possible to check after a flight;

#### **5.5.12.8 Contest Flights**

- a) The competitor is entitled to at least four (4) official flights.
- b) The competitor is entitled to unlimited attempts during the working time.  
Before restarting, the flight battery must be briefly disconnected from the controller to reset the AMRT.
- c) An official attempt begins when the model leaves the hand of the competitor or his helper with the electric motor running.
- d) In case of multiple attempts, the result of the last flight will be the official score.

#### **5.5.12.9 Re-flights**

The competitor is entitled to a new working time if:

- a) his model in flight or in the process of being launched collides with another model flying or being launched.
- b) When his flight is hindered or aborted by an event beyond his control.

To claim a re-flight considering the conditions mentioned above, the competitor has to make sure that the official timekeepers have noticed the hindering conditions and land his model as soon as possible after this event.

Note that if the competitor continues to launch or fly after hindering conditions affecting his flight or does a re-launch after clearing the hindering condition(s), he is deemed to have waived his right to a new working time.

#### **5.5.12.10 Landing**

- a) Each competitor will be assigned a start/landing spot before each flight. The competitor shall be responsible for using the correct assigned landing spot.
- b) During the landing process, only the pilot and his assistant are allowed within 10 meters of the landing spot. Any other helpers and timekeepers shall stay at a distance.
- c) After landing, competitors may retrieve their model aircraft before the end of their working time, providing they do not impede other competitors or model aircraft in their group. A model thus retrieved may be relaunched during the working time. No landing score may be recorded for a model touched before scoring the landing.

#### **5.5.12.11 Scoring**

The raw flight score for each round consists of the flight time score and landing bonus points.

##### **5.5.12.11.1 Scoring of the Flight Time**

The attempt will be timed from the moment of release from the hand of the starter device to either:

- a) the model aircraft first touches the ground; or
- b) completion of the group's working time.

The maximum flight time is 6 minutes and 30 seconds (390s) within nine (9) minutes (540s) working time. The flight time will be recorded in full seconds. If the flight is longer than (6:30) minutes (390s), the overflying time will be deducted from (6:30) minutes (390s). Each second of flight time will be scored two (2) points. The highest score within each flight group will be

assigned 1000 points, and the remaining scores within that group shall be proportional to each participant's raw flight score relative to the best raw flight score within that group.

#### 5.5.12.11.2 Scoring of the Landing

A landing bonus will be awarded in accordance with distance from the landing spot marked by the organisers according to the following tabulation:

Distance from spot	points	Distance from spot	points
up to m(meters)		up to m(meters)	
0.2	100	5 .....	80
0.4	99	6 .....	75
0.6	98	7 .....	70
0.8	97	8 .....	65
1.0	96	9 .....	60
1.2	95	10 .....	55
1.4	94	11 .....	50
1.6	93	12 .....	45
1.8	92	13 .....	40
2.0	91	14 .....	35
3.0	90	15 .....	30
4.0	85	over 15 .....	0

Zero points for landing will be recorded for the competitor, if:

- the model loses any part.
- the model is not airworthy after landing. If there is any doubt about this, the airworthiness must be demonstrated.
- the model is overflying the group's working time.
- the model touched the competitor or helper during the landing.
- the competitor or helper touched the model before the official scorekeeper made the distance measuring.

**Zero points** for the entire task (flight and landing) are awarded if:

- The model rests outside a landing area as defined by the organizer. Within the working time, the competitor may launch for another attempt.
- the model is overflying the working time for more than 30 seconds.

#### 5.5.12.12 Final Classification

If five (5) or fewer qualifying rounds are flown, the aggregate score achieved by the competitor will be the sum of his scores for all rounds flown. If more than five (5) rounds are flown, his lowest score will be discarded before determining his aggregate score.

For competitors who qualified for the fly-off, the final ranking is determined by the ranking at the fly-off; for other competitors, the ranking is done by the ranking at the qualifying rounds.

#### 5.5.12.13 Additional Information

The Information Bulletin will state any expected modifications of air space limitations.