


**1ST FAI WORLD PARAMOTOR
ENDURANCE CHAMPIONSHIPS 2024**



Sponsors:



LOCAL REGULATIONS AND TASK CATALOGUE

**FOR THE 1ST FAI
WORLD PARAMOTOR ENDURANCE CHAMPIONSHIPS
2024**

**Location: Manston Airport, Kent, ENGLAND
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AUTHORITY

These Local Regulations combine the General Section and Section 10 of the FAI Sporting Code with regulations and requirements specific to this championship. The FAI Sporting Code shall take precedence over the Local Regulation wording if there is omission or ambiguity.

CLARIFICATION

Classes PF1, and PL1 are "Paramotors"

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Part 1: Local Regulations

1 INTRODUCTION

1.1 MISSION STATEMENT

The FAI paramotor 'Endurance' format builds on "classic" FAI tasks, but with significant emphasis on long distance navigation, maximising flying hours for pilots and minimising extensive briefings or complex rules. The key objective to our championship structure is to award trophies to the pilots that demonstrate the highest degree of skill through tasks that accurately represent the flight planning, decision making, and aircraft control necessary to fly paramotors safely and enjoyably. The format has been extensively developed and tested since 2018 through the annual British National Paramotor Championships, and the content of this document has been refined and adapted accordingly; this development accounts for any differences between this document and S.10 A8.

Fundamentally, the competition is a series of navigational and piloting challenges, many of which can be attempted at any point during the allowed flying hours of the competition, which takes place over a period of several days. Further bonus points can be gained by collecting turn points en route to and from the precision tasks. Pilots are permitted a maximum number of flying hours each day, within a longer flying window that utilises the majority of daylight hours. Pilots may make any number of flights and refuelling stops within each daily flying period. Pilots will normally conclude their day's flying by returning to the airfield; occasionally an alternative final landing point may be briefed if windy conditions dictate. Careful flight and weather planning across the period of the competition is therefore essential, as is equipment selection to maximise the distance/fuel economy balance of long distance flight.

Key features of the paramotor endurance format are:

- Large competition map area (approximately 4,000 km²), with minimal restrictions and no-fly zones.
- Many hours flying over spectacular and varied terrain (pilots expected to fly approx. 20-25 hours XC)
- A strong focus on strategic flight planning, airborne decisions and practical paramotoring and piloting skills.
- Free choice of flight windows up to a maximum (specified) limit of airtime hours per day, within a larger task window that utilises the majority of daylight hours.
- Minimum of briefings and penalties.
- Simple and fast scoring, using live GPS tracking to follow pilots.
- Pilots score points through a range of task types:
 - Precision navigation by following prescribed routes accurately in both positional and speed control
 - "Collecting" turn points en route to and from other tasks
 - Flying economically, through choice of equipment, throttle management and/or use of thermic air
 - Precision wing control in accurate landing or ground-based tasks.

1.2 PROGRAMME DATES

First online team leader briefing:	Wednesday 17/07/24 13:00 UTC
Arrival of teams on site:	From Tuesday 30/07/24
Training, aircraft inspection, registration:	Wednesday 31/07/24 to Friday 02/08/24
Opening Ceremony:	Saturday 03/08/24
First Competition briefing:	Saturday 03/08/24
Contest Flying Days:	Sunday 04/08/24 to Friday 09/08/24
Closing Ceremony, Prize-giving:	Saturday 10/08/24

1.3 OFFICIALS

Director:	Barney Townsend
Deputy Director and Chief Scorer:	Andy Phillips
International Jury:	Wolfgang LINTL (GER), Sultan ALENIZI (KSA), Agust GUDMUNDSSON (ISL)
Stewards:	Pascal NOIROT (FRA)

1.4 ENTRY

The Championships are open to all Active Member and Associate Member countries of FAI who may enter:

6 male pilots plus one female pilot in the PF1 and PL1 classes. Therefore a team size is maximum 6 pilots in any class if all pilots on that team are male, but 7 if at least one female pilot is included in the team.

- Entries must be made on the official Entry Form.
- If applications, with fees paid, are not received by 29/07/24, the entry may be refused.
- The entry fee is:

£500 for pilot in each class if paid before 30/04/2024, £600 thereafter.

£100 for each Team Leader and accompanying persons.

The entry fee includes:

- Competition operations (setting, controlling and evaluating the tasks)
- All competition materials (maps, task descriptions, control point atlases, etc.)
- Loan of one Flymaster Live Tracker (logger) for scoring
- Free use of the airport and free entry to all official events.
- Camping place for each team with water, electricity, shower & toilet facilities
- One official competition T-shirt
- Celebration meal on final evening after award ceremony.

The entry fee is to be transferred to the designated account before competition entry is confirmed. Account details will be provided with registration forms.

1.5 REFUND OF ENTRY FEES

1.5.1 EVENT CANCELLATION

If a CAT 1 event is cancelled or does not take place, all entry fees that have been paid shall be returned in full and no CIMA sanction fees are due.

If a CAT 1 event is stopped by Jury decision or by force majeure, a portion of the entry fees, to be determined by the CIMA bureau, shall be returned. In this instance, CIMA sanction fees shall be paid in full.

1.5.2 WITHDRAWAL FROM A CAT1 EVENT

Participants who withdraw from a CAT1 championship before the start of the official practice period shall be entitled to a refund of part of their entry fees according to the scale below. In this instance, no CIMA sanction fees are due.

30 days (or more) before = 100%

29 days (or less) before = 50%

Participants who withdraw after the start of the official practice period shall receive no refund and CIMA sanction fees shall be paid in full.

1.6 INSURANCE

Third party insurance of minimum £1,300,000 (or equivalent) is obligatory. Personal accident insurance for team members and insurance against damage to aircraft are highly recommended. Documentary proof of insurance as specified on the Entry Form must be presented to the Organizers at Registration.

1.7 LANGUAGE

The official language of the Championships is English.

1.8 MEDALS AND PRIZES

FAI medals will be awarded to:

- Pilots placed first, second and third in each class (including PF1f if in compliance with S10 4.3.2).
- National teams in each class placed first, second and third.

Because the championship is only open to 2 classes, there is no combined Nation Score prize in this championship (as per S10 4.34.12 (b))

- FAI Diplomas will be awarded for those placed first to tenth.

1.9 CHAMPIONSHIP CLASSES

The Championships will be held in the following classes:

PF1m + PF1f, PL1

Each class is a championship in its own right and as far as possible interference of one class by another shall be avoided.

1.9.1 CLASS VIABILITY

For a championship class to be valid there must be competitors from no less than 4 countries in a class, ready to fly the first task, and must start a minimum of one task. (S10 4.3.2)

1.9.2 CHAMPIONSHIP VALIDITY

The title of Champion in any class shall be awarded only if there have been at least 10 available 'window open' XC flying hours during the period of the championship. This does not include hours spent on precision tasks.

1.10 GENERAL COMPETITION RULES

1.10.1 REGISTRATION

On arrival the team leader and members shall report to the Registration Office to have their documents checked and to receive supplementary regulations and information. The following documents are required:

- Pilot License and qualifications.
- Evidence of competitor's identity.
- Valid FAI Sporting License for pilot and navigator.
- Aircraft Certificate of Airworthiness or Permit to Fly (if applicable).
- Minimum speed declaration (not required for Paramotors or foot-launched Microlights).
- Evidence of conformity to class rules.
- Certificate of Insurance.
- Receipt for payment of entry fees.

The Registration Office will be open as indicated on the information board.

Registration forms may be inspected by Team Leaders on request prior to the start of competition flying.

1.10.2 PILOT AND NAVIGATOR QUALIFICATIONS

A competing pilot shall be of sufficient standard to meet the demands of an international competition and hold a valid pilot license or equivalent certificate. Both pilot and navigator must hold an FAI Sporting License issued by his own NAC. The navigator must have reached the age of 16 years.

1.10.3 AIRCRAFT AND ASSOCIATED EQUIPMENT

Each aircraft shall fly throughout the championships as a single structural entity using the same set of components as used on the first day except that propellers and carburettor jets may be changed. Any further changes to equipment, eg. replacement of parts as a result of damage, must be approved by the director. Such changes will normally be permitted, but will be subject to a default penalty of 20% applied to any subsequent tasks flown, in which the replacement equipment is deemed by the director to offer any potential advantage to the pilot. For tasks in which no advantage can be gained by the used of the replaced equipment, this penalty may be waived, again at the director's discretion.

Paragliders used in the competition must be serial production models available for sale to all pilots through the manufacturer or their representative (dealer's) website. Prototypes or any modifications to the following paraglider elements are strictly prohibited:

- Paraglider shape and dimensions
- Lines configuration and dimensions
- Risers and riser accessories configuration and dimensions.

Aircraft must be flown with manufacturer standard fuel systems only. No pilot modifications to fuel systems such as additional tanks are permitted, except for standard maintenance replacement of fuel pipes, bulbs, and filters. Small header tanks or “comp bottles” may be used provided that they conform to the following limitations:

- Approved by the manufacturer of the aircraft, as evidenced by availability for sale to all pilots through the manufacturer’s public website.
- Maximum 1.5 litre volume (nominal) bottle, as a single structural entity
- If an electric pump is used, it must be certified for use specifically with gasoline.
- Flow metering devices are allowed but must also must be certified for use specifically with gasoline.

It is the responsibility of the pilot to provide evidence of this to the championship organisers if requested, and gain approval, in advance of arrival at the site. There is no need to carry additional or extended fuel tanks in this format because pilots may land to refuel as many times as they need to.

A protective helmet must be worn whenever the pilot is strapped into the harness of an aircraft. Paramotor engines may only be started on the back of the pilot for PF1 (i.e. not resting on the ground), and when the pilot is wearing a helmet.

An emergency parachute system is mandatory. It is the pilot’s responsibility to ensure that this is in a safe and serviceable condition.

All pilots’ equipment may be subject to inspection by marshals at any time during the competition and the pilot may be prevented from flying if deemed to be unsafe.

1.10.4 TEAM LEADER RESPONSIBILITIES

The team leader is the liaison between the organisers and his team. They are responsible for the proper conduct of his team members, for ensuring that they do not fly if ill or suffering from any disability which might endanger the safety of others and that they have read and understand the rules.

1.10.5 STATUS OF RULES AND REGULATIONS

Once competition flying on the first day has started:

- No rules or regulations may be changed. Any additional requirements within the rules needed during the event will not be retrospective. (S10 4.9.4).
- Competitors may not be substituted, or change to another class.

1.10.6 PRACTICE & REST DAYS

An official practice period of not less than 1 and not more than 5 days immediately preceding the opening of the Championships shall be made available to all competitors. All the infrastructure for the competition (camping, maps, offices, scoring...) shall be ready for the first day of the official practice period. If practicable, on at least one practice day, a task should be flown under competition conditions to test the integrity of the organisation. The scores thus generated shall not be counted. (S10 4.7.3)

Rest days will only be held on account of bad weather or unforeseen emergency.

1.10.7 COMPLAINTS

A competitor who is dissatisfied on any matter may, through his team leader, make a complaint in writing to the Director.

Complaints shall be made, and dealt with, without delay but in any case must be presented not later than 6 hours after the respective Provisional Score sheet has been published, not counting the time between 22:00 and 07:00, except for the tasks of the last competition day, or for Provisional Score sheets published on or after the last competition day, when the time limit is 2 hours.

A complaint that could affect a task result must be dealt with and answered in writing before any official score sheet is issued. All complaints and their responses must be published on the official notice board. (S10 4.36)

1.10.8 PROTESTS

If the competitor is dissatisfied with the decision about its Complaint, the Team Leader may make a protest to the Director in writing and accompanied by the protest fee of £50. The fee is returnable if the protest is upheld or withdrawn before the start of the proceedings. A protest may be made only against a decision of the Championship Director.

A protest must be presented not later than 6 hours after the respective Official score sheet has been published, except for the tasks of the last competition day, or for Official Score sheets published on or after the last competition day, when the time limit is 2 hours. The night time between 22:00 and 07:00 is never included. (S10 4.36)

1.11 FLYING AND SAFETY REGULATIONS

1.11.1 BRIEFINGS, TASK WINDOWS, AND FLYING HOURS

A primary objective of this competition format is to minimise briefings.

Therefore, the primary and most extensive briefing for team leaders and/or competitors will be held on the day preceding the first flights of the competition. At this briefing, detailed maps containing the precision routes will be distributed to competitors.

A further short briefing will be held in the evening of each flying day for information updates. The time and place for briefing meetings and any postponements will be prominently displayed; There may also be short briefings at other times as weather and conditions dictate.

All briefings will be in English and be recorded in notes, by tape recorder or video. A full task description, meteorological information, flight safety requirements, penalties, and details of any prohibited or restricted flying areas will be given in writing, as a minimum, to team leaders, Jury members and Stewards. (S10 4.21)

Procedures for flight preparation, take-off, flying the task, landing and scoring together with any penalties will be specified in each task description. (S10 4.21)

Flight safety requirements given at briefing carry the status of regulations. (S10 4.21)

Team Leaders' meetings, in addition to briefings, may be called by the Director, but shall be held within 18 hours if requested by five or more team leaders. (S10 4.22)

Competition flying will normally take place between 07:00 and 21:00 daily, throughout each day of the competition. Shorter windows for particular activity or task types within this period will be briefed.

A maximum total number of XC airtime hours a pilot may fly for any particular competition day will be defined by the director at the evening briefing the night before. This will be based on weather forecasts, and will be no more than five hours in any one day.

Airtime will be computed automatically from the GPS track, and there will be a penalty for exceeding this. The computation of airtime shall be defined as the time between the first time a pilot crosses one of the defined SL/FL points after take-off, and the final time that they pass an SL/FL before landing. This rule is in place for safety reasons, because it removes any incentive to rush a landing approach in order to avoid penalties for a late return. For pilots who fail to cross the SL/FL on either their outbound or return flights, their flight time will be computed from the precise moments of take-off and landing at the airfield, and all points gained on that particular flight will be subject to a 20% penalty.

1.11.2 COMPLIANCE WITH THE LAW

Each competitor is required to conform to the laws and to the rules of the air of the country in which the championships are held. (S10 4.23.1)

1.11.3 PREPARATION FOR FLIGHT

Each aircraft shall be given a pre-flight check by its pilot and may not be flown unless it is serviceable. (S10 4.23.3)

1.11.4 FLIGHT LIMITATIONS

Each aircraft shall be flown within the limitations of its Certificate of Airworthiness or Permit to Fly. Any manoeuvre hazardous to other competitors or the public shall be avoided. Unauthorised aerobatics are prohibited. (S10 4.23.2)

1.11.5 DAMAGE TO A COMPETING AIRCRAFT

Any damage shall be reported to the organisers without delay and the aircraft may then be repaired.

An aircraft may be replaced with any other in the same class during the competition by permission of the Director if damage has resulted through no fault of the pilot. Replacement may be only by an identical make or model or by an aircraft of similar or lower performance and eligible to fly in the same class. (S10 4.23.5)

1.11.6 TEST AND OTHER FLYING

No competitor may take-off on a competition day from the contest site without the permission of the Director. Permission may be given for a test flight but if the task for that class has started the pilot must land and make a competition take-off on the task. Practising prior to a task is not permitted. (S10 4.25)

1.11.7 FITNESS

- A pilot may not fly unless fit. Any injury, drugs or medication taken, which might affect the pilot's performance in the air, must be reported to the Director before flying.

- Every nation has the full responsibility to fight against doping. Anti-doping control may be undertaken on any competitor at any time.
- The decision to impose anti-doping controls may be taken by the FAI, the organiser or the organiser's national authority.
- All relevant information can be found on the FAI Web site: www.fai.org/medical

1.11.8 AIRFIELD DISCIPLINE

Marshalling signals and circuit and landing patterns will be given at briefing and must be complied with. Non-compliance will be penalised.

1.11.9 COLLISION AVOIDANCE

A proper lookout must be kept at all times. An aircraft joining another in a thermal shall circle in the same direction as that established by the first regardless of height separation.

A competitor involved in collision in the air must not continue the flight if the structural integrity of the aircraft is in doubt. (S10 4.24.6)

During a navigation along a leg, competitors must not backtrack along the track line against the direction of the task. If there is a need to backtrack, competitors must leave the track line and fly back well clear of it before rejoining the track line at an earlier point. All precision routes will be clearly defined with a start point, a finish point, and a direction in which they must be flown.

Backtracking is defined as per Section 10 definition in 4.24.5.

Backtracking is only applied if a competitor has crossed the start point (i.e. passed it within the specified radius) of a precision navigation task. If they are simply crossing the precision route as in progress between other turnpoints, it will not be considered backtracking, but competitors shall apply good airmanship and maintain high awareness that they are traversing an active route.

1.11.10 CLOUD FLYING

Cloud flying is prohibited and aircraft shall not carry gyro instruments or other equipment permitting flight without visual reference to the ground. (S10 4.24.6)

1.11.11 MANDATORY AND RECOMMENDED EQUIPMENT

A protective helmet must be worn whenever the pilot is strapped into the harness of an aircraft.

A reserve parachute system must be used on all aircraft.

1.11.12 ELECTRONIC EQUIPMENT

All pilots shall carry a Flight Recorder which will be issued by the competition organisers. This shall be kept switched on and logging throughout flight to enable scoring. Competitors may, and are strongly advised to, carry a backup GPS unit of their own, but this must be sealed before flight and signed off by a marshal if it displays any visible navigational information (AMOD loggers do NOT need to be sealed). The organisation team accept no responsibility for lost or missing tracks resulting from flight recorder errors.

Competitors are not permitted to use any other navigational aids. Smartphones with Internet or GPS capability may be carried as a back-up but must be checked as switched off and be sealed by marshals before flight. Competitors are advised to carry a 'basic' non-GPS or internet enabled phone, which may be carried unsealed during flight, and this number will be used for notification of task cancellations. This will also enable pilots to telephone marshals for retrieval in the event of landing out without further penalty.

Sealed devices may only be unsealed during a day's flight in order to change batteries. This must be done in the presence of marshals at the airfield or at FD points.

1.11.13 EXTERNAL AID TO COMPETITORS

Any help in navigation or thermal location by non-competing aircraft, including a competing aircraft not carrying out the task of their own class is prohibited. This is to ensure as far as possible that the competition is between individual competitors neither helped nor controlled by external aids. (S10 4.26)

Any assistance to pilots on the ground is encouraged, although if Airside, this must be from authorised marshals, or registered team leaders or assistants only, for insurance reasons. No assistance may be given to pilots in-flight, or in any way regarding their navigation. Anyone other than competition pilots must wear hi-vis when airside.

Any pilot observing that another pilot has landed and has not folded their canopy within three minutes is obliged to render assistance. The Director will decide on appropriate measures after the event to ensure that this does not disadvantage the pilot giving assistance.

1.12 CHAMPIONSHIP TASKS

1.12.1 GENERAL

To count as a valid championship task all competitors in the class concerned will be given the opportunity to have at least one contest flight with time to carry out the task.

In general, tasks and windows are the same for all classes, but the specific map area and designation of out-landing zones or not may vary between classes. This is due to the limitations on suitable landing fields for PL classes.

Precision tasks may be combined with other tasks or set separately.

1.12.2 COMPETITION MAPS

One full set of colour printed competition maps will be provided to each competitor. The following features will be indicated on the official competition map:

AF: Airfield.

Does not score as a turnpoint unless also briefed as a precision landing task.

TP: A standard turnpoint to be flown through, defined by a circle of 250m radius centred on a map feature.

Landing here is forbidden and invalidates the score. Score value of turnpoints is increased by distance from the airfield, and the values of each will be clearly indicated on the map by the number of concentric rings centred on the feature. Pilots may only score each turnpoint once during the competition.

SL/FL: The start/finish line is a line between two clearly-defined features or along a linear feature on the map close to the airfield. All pilots must pass through one of these on their outbound climb and inbound landing approaches in order to activate and then stop their flight allowance timer for all tasks. There is no score for passing through them; but for pilots who land without having passed through an SP/FP on both their outward and return flights, their flight times will be computed from take-off and landing on the airfield itself, and a 20% penalty will be applied to all points scored on that flight. If there is more than one SP/FP defined, they can be used independently. For example, in any single flight, a pilot might activate their time by passing SP/FP1, but they may return through either SP/FP1, or SP/FP2, according to their personal flight plan.

In between crossing the SL and FL a pilot is considered to be 'on task' and must fly above minimum height of 500 feet (150m) above ground level at all times unless outlanding. A 20% penalty will be applied to the total score for that flight, for each incursion below minimum height that lasts longer than 5 seconds in sequence. If the period of time below minimum height is longer than 5 minutes, the penalty is increased to 50%.

FD: A Fuel Depot point.

Marshal-controlled refuelling point. Pilots shall bring adequate spare fuel containers to provide marshals with reserves before flying each day. Performing a normal landing at these points will score the same as with turnpoints. FD points may also contain a precision landing task, if briefed. There will be a maximum of two of FD points.

HG: A Hidden Gate.

Hidden Gates are a straight line 250m wide perpendicular to the briefed track (i.e. 125m to each side). They are used for scoring navigation or timing accuracy as per tasks 2.1, 2.2, and 2.3

NFZ: No-Fly Zone.

This may be CAA restricted airspace, or additional local restrictions. Incursions will typically incur a 50% reduction in the points scored for that day's flying, or more at the discretion of the director.

Pilots must fly only with the maps provided or the CAA air map and may not use any additional navigation aids, apart from a magnetic compass.

1.12.3 TASK PERIOD

Times for task windows, maximum daily flight duration, turn points and last landing will be announced in briefing and displayed in writing.

The maximum available daily allowed airtime hours on XC navigation per pilot shall not normally exceed 5 hours in one day. The only exception to this is the final day of the championship, only if a valid championship has not yet been achieved.

1.12.4 TASK SUSPENSION OR CANCELLATION

The Director, or an appointed safety committee, may suspend flying after take-offs have started, if to continue is dangerous. Anemometers will be placed on the deck, and take-offs will be temporarily suspended if the windspeed exceeds 7m/s for PF1 class and 5m/s for PL1 class. At any time, the Director may decide to cancel the task, for sporting or safety reasons.

As weather across the whole competition area may vary significantly, it will be pilots' sole responsibility to make appropriate decisions whether and where to take off or not, where and when to fly and land and to take care of their safety.

If flying is cancelled by the director, competitors will retain any points they have scored for the day up to the time of cancellation.

1.12.5 TYPES OF TASKS

Only tasks approved by CIMA or listed in S10 A8 will be used.

Tasks fall into categories of Navigation, Precision, and Economy.

A catalogue of tasks (and their scoring systems) to be implemented during the championship is attached to these local regulations.

1.12.6 FLYING THE TASKS

During a normal day of good flying weather, the director might (for example) open the flying window at 07:00 and close it at 20:00. During this 'window open' period, all navigation tasks of type 2.1, 2.2, 2.3, and 2.4 are considered to be active.

Pilots may take off when they choose from the deck (free take-off under marshal supervision), and have as many flights as they wish during this period, so long as their total airtime for the day does not exceed the maximum limit defined by the director. During their flights, pilots may choose to follow any of the precision routes marked on their maps, or simply collect turn points.

Order of take-off will normally be open for navigation tasks, but may be regulated for precision tasks.

Each of the precision navigation task routes (types 2.1, 2.2, and 2.3) on the map may only be attempted once by each pilot during the championship. An attempt is defined as crossing the defined start point of the task within the defined radius of that point. This applies even if a pilot inadvertently crosses a start point, whilst in transit to another task.

1.12.7 LANDINGS / OUTLANDINGS

During the tasks, pilots may land in the Airfield, or in designated FD (Fuel Depot) points to refuel. Any of these landings may be used as a rest break or a pause for strategic reasons, but the pilot must eventually take off again from these points and continue their flight, finally returning to the airfield (or such other final landing point as defined in the briefing) to complete the day's tasks, in order for these not to count as an outlanding.

Pilots are expected to conclude their day's tasks by landing back at the airfield, or another final landing point only if defined in the briefing. Failure to do so, or landing at any point not designated as a landing zone, will be considered an Outlanding.

Outlandings as described above shall result in a 50% reduction in the points scored up to the point of landing during that flight. For these purposes, a "flight" is considered to be an outward and return journey starting and finishing at the base airfield (i.e. landing at a fuel depot does not start a new "flight"). This penalty is applied to points scored on all navigation tasks (2.1, 2.2, and 2.3 and 2.4) attempted during the same flight.

If a pilot lands out with an engine or other problem during the task, they may, within the flying window, land if it is safe to do so, repair their aircraft, and continue flying to score more points for the day; these points will not be subject to any further penalty. Pilots may return to the airfield to make these repairs if necessary and if transport is available. When resources allow, roving marshal teams in vehicles will be assigned to assist with retrievals. Pilots may also use their own support teams for retrievals.

If a pilot has an outlanding, he/she must inform the organisers by telephone, with the minimum of delay and at the latest by the closing time of the task. If the aircraft can be repaired in the field, a pilot may take off again and continue the task without further penalty. If they need to break the seal on either a smartphone (or the fuel system, if defined), the 50% penalty applies to all points scored up to the point at which the phone is re-sealed by a marshal.

1.12.8 FLIGHT BOUNDARIES

Flights terminating beyond the boundaries of the organiser's country shall score only to the point where a straight line between the start point or last turn point and the landing place last cuts the boundary, unless permission is given at briefing to cross such boundaries. (S10 4.33)

The flight boundary shall be limited to the extents of the official competition map provided to competitors unless specifically briefed.

1.12.9 EMERGENCIES

Upon outlanding, a pilot must fold up their canopy within three minutes of landing. A canopy that has not been folded within three minutes indicates that the pilot is in need of help. Any pilot who observes such a situation is obliged to render assistance and contact the organisation as soon as possible. A competitor landing to help an injured pilot shall not, at the discretion of the Director, be disadvantaged by this action.

The above procedure is evidently not applicable when the wing is being laid out for take-off, but pilots should beware not to leave the equipment laid out ready and then wait for long periods before taking off.

1.12.10 THE SECURE AREA

This is a clearly marked area where the aircraft must be placed from time to time as instructed by the director. Once in the Secure Area and without the expressed permission of the director, no aircraft may be touched for any reason other than to remove it from the Secure Area. Competitors who do not respect the rules of the Secure Area may be liable to penalty.

1.12.11 QUARANTINE

This is a clearly marked area to which aircraft and crew must go from time to time as instructed by the director, usually for the purposes of scoring, fuel measurement and scrutineering of fuel tank seals, fuel systems, telephone seals etc. Once in the Quarantine and without the expressed permission of the Quarantine Marshal, the crew may not communicate with anyone else and may not modify or otherwise change the configuration of their aircraft and items carried. Competitors who do not respect the rules of the Quarantine area may be liable to penalty.

1.13 CONTROL OF TASK FLIGHTS.

1.13.1 TIMING

All times are given, taken and calculated in local time or simple elapsed time, rounded down to the most accurate permitted precision. (S10 5.2.6 and 5.2.7)

1.13.2 FUELLING

Competitors wishing to use the option to refuel at the FD (Fuel Depot) zones (if available) during the tasks must bring their own containers to the championship which they can give to the marshals who will be on duty in the FDs. There will be a maximum of two FDs designated for any particular day's flying.

For any particular flying day, the director may brief a maximum limit to the amount of fuel that can be used. When such a task is defined, landings and take-offs will only be performed at the Airfield, i.e. where marshals can monitor pilots during refuelling. When fuel is limited in this way, the amount of fuel will be specified by the director at the briefing. The amounts of fuel allowed may be different for each competition class.

At the airfield, all refuelling of paramotors is to take place ONLY in the designated refuelling area.

When an economy task is set, fuel will be measured by weight or volume but will be consistent for any given refuelling session. Measured fuel quantities include oil where it is mixed with petrol. Fuel measured by volume shall be within $\pm 10^{\circ}\text{C}$ of the ambient temperature.

Refuelling may be in order and in accordance with the instructions given at briefing. If so briefed, failure of the aircraft to be present on time may result in penalty for the pilot.

An official observer, or a team leader or competitor from a rival team must control fuelling.

Official observers will collect documentary evidence that all competitor's fuel systems are sealed immediately after fuelling, and that all competitor's fuel systems seals have been inspected after landing. Sealing of tanks is optional if aircraft are moved under supervision of officials directly to the take-off place.

1.13.3 ACCURACY

Landing accuracy will be verified by video cameras.

1.13.4 GATES, TURNPOINTS AND MARKERS

Gates are normally a straight line 250m wide perpendicular to the briefed track.

Gates may be:

- Known gates. Their position and height (where appropriate) to be crossed will be briefed.
- Hidden gates. The height to be kept along the sections of the course where they are situated will be briefed.

Proof of passing a gate and its timing will be by Marshal's report or GNSS flight recorder evidence, as briefed.

Control points may be: A geographical point, a ground marker, a landing marker or a kicking stick.

Control points may be:

- Known control (turn) points. Their position and description will be briefed.
- Hidden control points. The track along which they will be found and their description will be briefed.

Proof of reaching a control point will be taken by flight recorder evidence.

The precise requirements will be described in the Task Description.

1.14 GNSS FLIGHT RECORDERS

- 1.14.1 The status of GNSS flight recorder evidence relative to other forms of evidence is as follows:
- All aircraft shall carry a FR which will be used as primary evidence.
 - In the event of a failure of the primary FR, a second FR or observer's report may be used as secondary evidence.
- 1.14.2 Only CIMA approved FRs may be used as backup devices and they must be operated in strict accordance with their approval documents. Currently, CIMA's policy is to allow any FR approved by another FAI commission.
- 1.14.3 One FR will be supplied to each pilot in the championship included in their entry fee. Pilots may, on registration, sign up to rent additional FRs as backups, at a cost of £20 per FR.
- 1.14.4 Once the championship has started, the pilot must always use the same FR. In the event of a permanent failure of the primary (provided) FR, another FR will be provided to the pilot to replace it.
- All FRs must be presented to the organisation for inspection immediately before the start of each task. If secondary evidence is presented, then both sets must be clearly marked 1 and 2. Only one set of evidence will be used to verify the flight.
- 1.14.5 It is the pilot's responsibility to ensure that he is fully aware of the functions and capabilities of his FR eg. that it has sufficient battery power, is in the correct mode, and that the antenna is correctly positioned etc.
- 1.14.6 The scoring zone for FRs is independent of any other zone or sector (eg. one with ground observers). A scoring zone will normally be a cylinder of 250 m radius and of infinite height.
- To score, a track fix point must either be within this circle, or the line connecting two sequential track fixes must pass through the circle. Additionally, the task may require one of these fixes to be associated with a pilot event mark (PEV).
- Complaints about the physical mis-positioning of a scoring zone relative to a turnpoint will not be accepted unless it can be shown that the physical position of the location is outside a circle of radius $R = R_p/2$ where $R_p =$ Radius or size of the scoring zone defined by the organizers (*ie the physical location must lie inside an inner circle half the width of a gate or radius of a scoring zone*).
- 1.14.7 Gate or point time is taken from the fix immediately before it is crossed.

1.15 SCORING

1.15.1 GENERAL

The overall results will be computed from the sum of the task scores for each competitor, the winner having the highest total score in the class. (S10 4.34.10)

A score given to a competitor shall be expressed to the nearest whole number, 0.5 being rounded up. (S10 4.34.13)

All distances not obtained from GNSS shall be calculated from the official map and rounded up to the next 0.5 km. (S10 4.34.14)

Deduction of penalty points shall be made after scoring for that task is completed. (S10 4.34.16)

If a pilot's score is for any reason negative including penalties his score for the task shall be taken as zero. Negative scores shall not be carried forward. (S10 4.34.18)

The following standard symbols will be used for scoring:

V = Speed, D = Distance, T = Time

The scoring system to be used shall be approved by the FAI Microlight and Paramotor Commission and attached to the Local regulations.

Score sheets shall state the date for the task and the date and the time when the score sheet was issued, the task number, classes involved, competitors name, country, competition number and score.

Each valid class shall be scored on a separate score sheet.

Score sheets shall be marked Interim, Provisional, and Official, or if a protest is involved, Final. A Provisional score sheet shall only become Official after all complaints have been answered by the Director. Scores shall not be altered when the Provisional sheet is made Official. (S10 4.34.3)

When interim score sheets are published, a pilot who has not yet attempted a navigation task will be marked as DNFY or "Did Not Fly Yet". This signifies that they may still attempt that task on one of the subsequent days of the championship.

When provisional score sheets are published, it indicates that a task is closed and will not be available again during the championship. This will activate the final deadline for complaints about that task. A pilot who did not fly, scores zero and will be marked DNF or "Did Not Fly" on the score sheet. A pilot who is disqualified scores zero and will be marked DSQ or "Disqualified". (S10 4.34.15)

Due to the nature of endurance championships, by which precision navigation tasks are widely spread across a large map area, it is pilot choice which of the navigation task options they choose to attempt. Not all pilots will attempt all tasks, so the rule S.10 4.34.18 does not apply.

If a failure in GNSS flight analysis or scoring is discovered before the end of the championship and the failure is due to a technical error which emanates from the equipment being used for the GNSS flight analysis or scoring, this failure must be corrected regardless of time limits for complaints and protests. (S10 4.34.19)

1.15.2 PENALTIES

In general, any infringement of any flying, safety or task regulations will result in penalty.

Minimum height for the competition as defined by the director will apply at all times when outside of the defined start and finish lines near to the airfield. A 20% penalty will be applied to the total score for that flight, for each incursion below minimum height that lasts longer than 5 seconds in sequence. If the period of time below minimum height is longer than 5 minutes, the penalty is increased to 50%.

The law of the United Kingdom as defined by the Air Navigation Order applies to all pilots.

Actions which will normally result in disqualification:

- a. Bringing the event, its organisers, the FAI or the sporting code into disrepute.
- b. The use of banned substances.
- c. Unauthorised interference with an aircraft in a Secure Area.
- d. Flight outside the specified flight envelope of the aircraft or dangerous flying.
- e. Flight or attempted flight with prohibited equipment.
- f. Unauthorised assistance during a task.
- g. Interference with the firmware or software of a CIMA approved GNSS flight recorder

1.16 RANGE

All aircraft will be expected to have a still air range of 100 km.

1.17 THE LAUNCH AND LANDING DECKS

- The launch and landing decks are clearly marked areas defined at the briefing.
- Under this format, the same area may be used for both launch and landing.
- Both launch and landing decks will normally be allocated as large an area as is available given the size of the airfield and any other space requirements imposed by the specific task being flown.
- A minimum of 100m x 100m is required per 30 competitors and shall be scaled and/or reshaped, at minimum, proportionally according to competitor numbers.
- All delineating borders of a landing deck shall be clearly visible from the air.
- A landing deck will have a windsock within 100m of its boundary.
- There will be no significant obstacles within 200m of the boundary of a landing deck.
- Unless otherwise briefed, penalties will be awarded to Pilots or any part of their aircraft touching the ground anywhere outside the landing deck during a task.
- Launch areas shall be arranged and used such that no class of aircraft may launch or land from behind and/or overhead any other class.

1.18 CONTEST NUMBERS

Aircraft shall carry a number at all times. Exact positioning and detailing of numbers will be defined in advance of the competition.

1.19 EMERGENCY EQUIPMENT

An emergency parachute is not to be considered as a part of the structural entity of an aircraft.

1.20 PROTECTIVE EQUIPMENT

A protective helmet must be worn whenever the pilot is strapped into the harness of an aircraft. An emergency parachute system is mandatory.

1.21 PROHIBITED EQUIPMENT

In addition to those items detailed in Part 1 of the local regulations: Disposable ballast & binoculars.

1.22.1 TIMINGS

To improve safety, timings for flights are not taken from when a pilots feet leave or touch the ground.

Normally, “take-off” and “landing” times are taken at first and last moments that a pilot crosses a designated SL/FL feature within any one flight. This eliminates the need to force a fast landing around other pilots in order to avoid losing points for late arrival.

Timings may also be taken when the pilot kicks a stick or flies overhead an observer as briefed for the task in question.

A task is deemed to have started the moment the first pilot to take-off is ready to take-off and ends the moment the last pilot has landed and has exited the landing deck.

In the case of a take-off time window, the precise time of take-off is entirely at the discretion of the pilot but shall be within the overall time window. In the case where a particular take-off time is given, the clock will start running at that moment and the pilot may subsequently take-off at any time.

The task window for navigation tasks 2.1, 2.2, 2.3, and 2.4 will extend throughout the period of the competition. The director will specify the opening and closing times of the task window each day, which will typically maximise the use of available daylight hours.

Pilots may fly for a maximum total number of airtime hours per day, to be specified by the director.

For example, for a particular championship, the director may specify:

Task window open: 07:00 – 20:00 daily

Maximum pilot airtime hours on navigation tasks for the day: 5

1.22.2 DISTANCE MEASUREMENT

All distance not obtained from FRs shall be calculated from the same official map, of a scale not smaller than 1:100,000. and rounded up to the next 0.5 km.

1.22.3 FUEL MEASUREMENT

Fuel will be measured by weight or volume but will be consistent for any given refuelling session. Refuelling will be in the order and in accordance with the instructions given at briefing. Failure of the aircraft to be present on time may result in penalty for the pilot.

Competitors must be able to demonstrate that their entire fuel system is empty.

1.23 FLYING THE TASKS

1.23.1 ASSISTANTS

Help from assistants on the ground (i.e. in all matters except navigation assistance) is positively encouraged throughout the championship, provided that the assistants are competent and experienced in paramotor environments and dangers. Team assistants must be registered with the competition organisers and must always wear hi-visibility vests when on the deck.

1.23.2 TAKE-OFF

In all tasks a PF must be foot-launched and a PL must take off on its wheels.

No pilot may take off without permission from the Director or a Marshal.

The main navigation championship tasks will be an Open window for take-off. If additional bonus or precision tasks are set by the director, a given order of take-off may be applied to tasks.

All take-offs, unless otherwise briefed, must be effected entirely within the designated airfields or Fuel Depot zones, except for emergency provisions given at briefing. Failure to comply will be considered an outlanding and penalised as per 1.12.6.

Before departure, a pilot and/or his aircraft may be inspected at any time for contravention of any regulations. It is the duty of competitors to assist marshals as much as possible in expediting an inspection.

Except in specified tasks, an aborted take-off does not in principle attract any penalty, however the pilot must comply with any instruction from the marshals to expedite a re-launch or the pilot risks being relegated to the end of the queue.

In the case where the take-off order is given:

- The first 6 pilots must be ready to take off at the start of the task.
- Every pilot must take off before the sixth pilot in order after him has taken off or a 20% penalty will apply.

- If a marshal considers a pilot to be causing unreasonable delay (has been on the deck more than 20 minutes with the opportunity to take off), a 20% penalty will apply.

In the case where a particular take-off time is given, the clock will start running at that moment and the pilot may subsequently take-off at any time.

1.23.3 FLIGHT LIMITATIONS

Aerobatics and manoeuvres such as stalls, B-line stalls, deep stalls and spins are prohibited. 'Big ears' is accepted.

1.23.4 PRECISION LANDINGS

In tasks where pilots are asked to make a precision landing or to land on a marker:

In PF: The objective is for the pilot to make a good landing on his own two feet without falling over. "Falling over as a result of the landing" will be interpreted as:

- GOOD: If the pilot falls to ONE knee - landing score as achieved.
- BAD: If the pilot falls to TWO knees - zero landing score.

In PL: The objective is for the pilot to make a good landing after which the aircraft comes to rest the right way up and without any damage. Zero landing score if the aircraft comes to rest off all its wheels or is structurally damaged in any way, although failure to restart the engine will not incur a penalty.

In tasks where the pilot is asked to switch off his engine above specific heights, the heights will be determined by:

- 500 Ft: "The engine must be stopped & propeller stationary for a minimum period of 45 seconds before any part of the aircraft or the pilot touches the ground."

Obstruction at landing markers: If a pilot or any part of his aircraft obstructs the attempted landing or the take-off of another competitor at a landing marker, then a 20% penalty will apply. However, any pilot who scores more than zero for his landing at a landing marker has exclusive use of the area immediately surrounding the marker for a maximum period of one minute in which to clear his aircraft from the area.

1.24 SCORING

1.24.1 ALL TASKS

Scores available to a pilot are allocated per task as defined in the task catalogue in Section 2 of this document.

The winner of the class shall be the pilot gaining the highest total points in the class.

The team score is computed from the sum of the scores of the top three pilots of each country in each task in each valid class which has minimum of 8 pilots.

Team scores are computed by class, and do not combine classes.

The task score for which a pilot was disqualified shall not count for team scoring. Other valid tasks flown by this pilot are not affected (S10 4.34.12)

Part 2. Task catalogue

The following navigation tasks descriptors 2.1, 2.2, 2.3 and 2.4 provide details of the principles by which tasks will be presented on the official competition map. It should be noted that these task formats may be presented in combination with each other in any particular route given. This will be clearly indicated on the map and described in the initial competition briefing.

2.1 PRECISION NAVIGATION OVER A KNOWN CIRCUIT

Objective

To fly a prescribed course between two or more turnpoints, without deviating from the width of the corridor defined in the task. Hidden gates will be placed at unknown points along the line.

Special rules

- TPs used to mark the start and end of each leg do not count for scoring the pure navigation task 2.4. They have a radius of 250m

- The corridor for the course is defined by the width of the hidden gates. These are 250m wide and perpendicular to the given track line, such that the limits of the corridor are 125m to the left and right of the given track line
- The number of hidden gates on the track line, and the approximate length of the curve, and the total point score available for the course, will be given in advance.
- The track line must be flown in the direction indicated on the map
- Backtracking within the width of the corridor, or flying the course in the wrong direction, results in 0 score for this particular precision course/task. This is for obvious safety reasons.

Scoring

Each hidden gate crossed scores 50 points. A gate crossed twice will be invalidated.

Spatial precision:

Vh = 50 (Value assigned to crossing a hidden gate on the track)

Nh = Number of hidden gates correctly crossed (crossed once, in order and proper direction)

Pilot Score Q = Vh * Nh

The maximum number of points available for any specific instance of this task will be displayed on the competition map.

2.2 PRECISION NAVIGATION WITH ESTIMATED SPEED

Objective

To fly a prescribed course between two or more turnpoints, having declared estimated times of arrival, in seconds from the start point of the track. Hidden gates will be placed at unknown points along the line.

Special rules

- TPs used to mark the start and end of each leg do not count for scoring the pure navigation task 2.4. They have a radius of 250m
- The corridor for the course is defined by the width of the hidden gates. These are 250m wide and perpendicular to the given track line, such that the limits of the corridor are 125m to the left and right of the given track line.
- The track line must be flown in the direction indicated on the map.
- Backtracking within the width of the corridor, or flying the course in the wrong direction, results in a zero score for this particular precision course/task. This is for obvious safety reasons.
- Pilots intending to participate in this task must submit their declaration sheet to marshals (or through online system if used) before their first take-off from the airfield within any one task window.
- If a pilot submits a declaration sheet but subsequently chooses not to fly the task, there is no penalty. They may resubmit the declaration sheet with different values again before their next flight if they intend to fly it. After a pilot completes the task, scoring will be made to the most recently time stamped submission of the declaration sheet.

Scoring

Spatial precision

Each hidden navigation gate crossed scores 25 points. A gate crossed twice will be invalidated.

Vh = 25 (Value assigned to crossing a hidden gate on the track)

Nh = Number of hidden gates correctly crossed (crossed once, in order and proper direction)

Qh = Vh * Nh

Time precision

Crossing time of each timing point will be checked against the pilot declaration. Each second of error will score two negative points. If a timing point is crossed twice, the pilot will score Emax for that point.

Nt = Number of timing points.

$E_{max} = 100$ (Maximum error (in seconds) in each timing point).
(i.e. if a pilot arrives more than 100 seconds early or late for the timing gate, they will register a maximum error value of 100 seconds and no more for that gate). E_{max} seconds error is applied if point not flown.

$Q_{max} = N_t * E_{max}$ (this is the maximum number of time precision points available for a perfect score on the task, and will be displayed on the competition map)

E_t = Sum of absolute errors in timing points, in seconds
(i.e. the sum total of all the seconds late or early arrival at all the timing points, limited to a maximum of 100 on each individual point)

$Q_e = E_t * 2$ (applies a multiplier of 2 to the error in seconds for scoring)

$Q_t = Q_{max} - Q_e$

$Q_{tmin} = 0$ (Q_t cannot be negative, to ensure that a pilot with high timing errors will still retain their Q_h score)

Pilot score: $Q = Q_h + Q_t$

2.3 PRECISION NAVIGATION WITH CONSTANT SPEED

Objective

To fly a prescribed course between two or more turnpoints, maintaining constant ground speed for the duration each leg. Hidden timing gates will be placed at unknown points along the line. The route between turnpoints may be straight or curved legs.

Special rules

- TPs used to mark the start and end of each leg do not count for scoring the pure navigation task 2.4. They have a radius of 250m
- The corridor for the course is defined by the width of the hidden gates. These are 250m wide and perpendicular to the given track line, such that the limits of the corridor are 125m to the left and right of the given track line.
- The track line must be flown in the direction indicated on the map.
- Backtracking within the width of the corridor, or flying the course in the wrong direction, results in a zero score for this particular precision course/task. This is for obvious safety reasons.
- No pre-declaration is necessary for this task. For any given leg of the course, the pilots' expected time of arrival at the timing point will be calculated as a pro-rata percentage of their time taken to complete the leg, equivalent to the percentage distance along the leg that the timing gate is placed.

Scoring

An estimated time for crossing each timing gate will be calculated by the organization based on the pilots time of arrival at the turnpoint that marks the end of that leg. Crossing time will be checked against this estimation. Each second of error will score two negative points. If a gate is crossed twice, time will be extracted from the first crossing.

Time precision

N_t = Number of timing gates.

$E_{max} = 100$ (Maximum error (in seconds) in each time gate).

(i.e. if a pilot arrives more than 100 seconds early or late for the timing gate, they will register a maximum error value of 100 seconds and no more for that gate). E_{max} seconds error is applied if gate not flown.

$Q_{max} = N_t * E_{max}$ (this is the maximum number of points available for a perfect score on the task, and will be displayed on the competition map)

E_t = Sum of absolute errors in timing gates, in seconds.

(i.e. the sum total of all the seconds late or early arrival at all the timing gates, limited to a maximum of 100 on each individual gate)

$Q_e = E_t * 2$ (applies a multiplier of 2 to the error in seconds for scoring)

Pilot Score $Q = Q_{max} - Q_e$

$Q_{min} = 0$ (applies in cases where $Q_e > Q_{max}$ to prevent negative scores)

2.4 PURE NAVIGATION

Objective

To fly a course of the pilot's choice between as many turnpoints or markers as possible within a given maximum time window.

This task is intended to allow pilots to gain bonus points en route to and from the other navigation tasks in this catalogue.

Special rules

- This task runs as a single continuous task throughout the period of the competition.
- Daily task window of available flight time to be specified by the director and briefed. Barring adverse weather conditions, this is normally expected to be between 07:00 and 20:00.
- Daily maximum number of pilot airtime hours to be specified by the Director and briefed. This will not exceed five hours, for safety reasons.
- All turnpoints shown on the maps provided to competitors are valid for this task, unless otherwise briefed. Points that are used to define other precision routes on the task map are not valid for this task. They have a radius of 250m.
- According to the briefing, pilots may be required to pass a particular start and finish gate to activate the task.
- This task may be de-activated during other specific tasks in the competition such as economy tasks, according to the briefing.
- Each TP passed correctly in the air for the first time will score its full weighted point value. Subsequent passes of that turnpoint, at any time during the remainder of the competition flying days, will not score any points. But neither will they be penalised if crossed inadvertently whilst transiting towards other tasks.
- Penalty for exceeding maximum defined airtime or task window: 50 points per minute over allowed time.
- Penalty for returning to the airfield by any means other than flight (i.e. outlanding): 50% of all points scored up to the point of landing during that flight. For these purposes, a "flight" is considered to be an outward and return journey starting and finishing at the base airfield (i.e. landing at a fuel depot does not start a new "flight"). This penalty is applied to points scored on all navigation tasks (2.1, 2.2, and 2.3 and 2.4) attempted during the same flight

Scoring

Turnpoint score weightings will vary between 10 and 30 points according to their distance from the Airfield. These will be clearly indicated on the published maps.

Each turnpoint passed correctly in the air for the first time will score its full initial point value. Subsequent passes of that turnpoint will not score any points, but neither will they be penalised if crossed inadvertently whilst en-route towards other tasks.

If any pilot successfully collects all turnpoints on the competition map during the period of the competition, the board 'resets' and the pilot may continue to score turnpoints for a second time, with all turnpoint values set to 10 points for that pilot from that point onwards.

N10 = Number of 10-value turnpoints correctly crossed for the first time by the pilot

N20 = Number of 20-value turnpoints correctly crossed for the first time by the pilot

N30 = Number of 30-value turnpoints correctly crossed for the first time by the pilot

Pilot score Q = N10 + N20 + N30

2.5 ECONOMY & DISTANCE – CLOSED CIRCUIT WITH 3 LEGS

Objective

To take off from the deck with a limited amount of fuel by weight and fly a triangular course of pilot's choice, maximising distance covered, and returning to land within the airfield. If possible, this task may be set to specifically emulate an FAI record category and it may be possible for pilots to set world records if conditions allow.

Special rules

- All three legs of the chosen triangle must conform to the FAI definition of a closed circuit with 3 legs: to be between 28% and 38% of the total length. (S10 3.8.3)
- The length of a closed circuit shall be measured as the sum of the geodesics joining the start point with the finish point, via the turnpoints in the order flown by the aircraft. (S10 3.8.5)
- A turn point is reached when the FR trace is observed to pass through a quadrant (90° degree sector) on the ground with its apex at the turn point and orientated symmetrically to and remote from the two legs of the course which meet at the turn point. (S10 3.8.7)
- Pilots must land within 800m of their takeoff point (i.e. inside the airfield, or crossing a start/finish line as briefed) to validate the closure of the triangle
- Pilots will have fuel measured by weight before take-off.
- Fuel tanks will be sealed by marshals before take-off, and checked again on landing.
- Normally precision landing tasks (2.6 and 2.7) will not be included when this task is set to avoid the risk of pilots burning fuel whilst stacking for a landing approach.
- When this task is set, all other navigation tasks (i.e. 2.1, 2.2, 2.3 and 2.4) are deactivated for the period of this task.
- According to the briefing, pilots may be required to pass a particular start and finish gate to activate the task.
- This is the only task for which pilots may, if it is defined in the briefing, be allowed to carry GPS navigational aids. This is to enable, if conditions allow, longer distances to be covered that take pilots beyond the limits of the standard competition map.

Scoring

$$\text{Pilot score } Q = N \times \frac{D_p}{D_{max}}$$

Where:

N = A multiplier to be defined at the briefing. The maximum score for the task will vary between 1000 and 2000 points, and will be set by the director based on the balance of points available from other task types according to the amount of flying enabled by weather. This value will be announced in the briefing before the task.

D_p = The pilot's distance calculated by the straight line distance between the centres of the three turnpoints used

D_{max} = The maximum distance covered by any pilot in the class

The outcome of the calculation will be rounded to the nearest whole number.

Penalty for exceeding maximum defined airtime or task window: no specific penalty, but all pilot distances D_p are only counted up to the defined limit.

Penalty for breaking the seal on fuel tanks outside of marshal supervision: 100%

Penalty for returning to the airfield by any means other than flight (i.e. outlanding): 75% of the points scored up to the point of landing during this task only.

Penalty for completing a 'flat triangle' (i.e. one that is closed by returning to airfield but does not meet the FAI triangle requirements for all legs to be between 28% and 38% of total length): 50% applied to D_p value.

Penalty for not completing a closed triangle (i.e. straight line distance): 75% applied to the D_p value.

2.6 PURE ECONOMY

Objective

Take off with a measured quantity of fuel and remain airborne for as long as possible before returning to the landing deck.

Special rules

- Pilots will fly with limited fuel, measured by weight before take-off.

- Fuel tanks will be sealed by marshals before take-off, and checked again on landing.
- Normally precision landing tasks (2.6 and 2.7) will not be included when this task is set to avoid the risk of pilots burning fuel whilst stacking for a landing approach.
- When this task is set, all other navigation tasks (i.e. 2.1, 2.2, 2.3 and 2.4) are deactivated for the period of this task.
- According to the briefing, pilots may be required to pass a particular start and finish gate to activate the task.

Scoring

Pilot score Q = $N \times \frac{T_p}{T_{max}}$

Where:

N = A multiplier to be defined at the briefing. The maximum score for the task will vary between 1000 and 2000 points, and will be set by the director based on the balance of points available from other task types according to the amount of flying enabled by weather. This value will be announced in the briefing before the task.

T_p = The pilot's time, after time penalties for landing out are applied (if applicable).

T_{max} = The longest airtime of any pilot in the task, after time penalties for landing out are applied (if applicable).

The outcome of the calculation will be rounded to the nearest whole number.

Penalty for returning to the airfield by any means other than flight (i.e. outlanding): 75% penalty applied to the recorded time value T_p.

Penalty for breaking the seal on fuel tanks outside of marshal supervision: 100%

Penalty for exceeding maximum defined airtime or task window: no specific penalty, but all pilot times T_p are only counted up to the defined limit.

2.7 SPOT LANDING

Objective

To land with engine off as near as possible to a target.

Description

This task will be located at the airfield or at one or more of the FD fuel depot points, as briefed. The location will be briefed in advance.

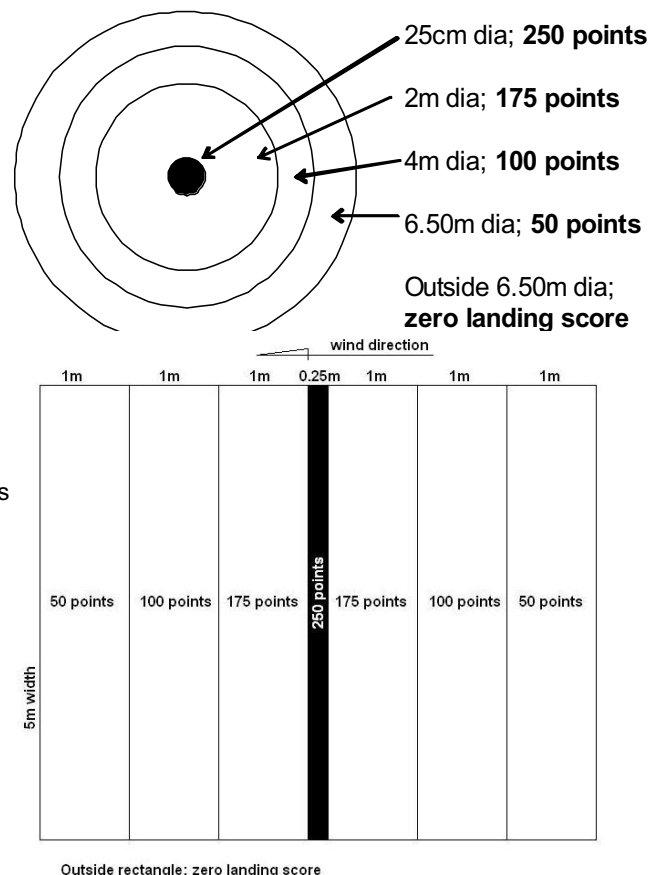
On approach, the pilot should circle the field at minimum 500ft (150m) to indicate to marshals that they are intending to attempt the task. If there are other pilots ahead of them in the queue, they should stack in a circuit above them, over a designated field to the side of the target. Circuit locations will be briefed in advance.

When given a green flag by marshals, they must pass at least 500ft directly overhead the target, cut the engine and try to make a first touch as near as possible to the centre of a target consisting of:

- A series of concentric circles for PF1 class.
- A series of 5m wide parallel strips for PL1 class

Special rules

- A pilot may only attempt each available landing task once per day of flying. They may still land normally in FD points for fuel or rest breaks.



- The circuit to be flown will be detailed at briefing.
- The first touch of the ground by the pilot's foot (PF) or the aircraft wheels (PL) is the point from which the pilot's score will be derived. A first touch on the line scores the higher score. When more than one PL wheel touches simultaneously, the point chosen is the one in favour of the pilot.
- For PF classes, there will be no penalty applied for any part of the aircraft touching the ground prior to the first scoring touch of the foot, so long as a 'good' landing is achieved, as described in S.10 A3, 3.3.5.
- If a pilot runs out of fuel whilst in a queue for the task, they will be permitted to refuel and attempt the task again.

Penalties

Not crossing the target or crossing it with engine on: zero landing score.

Flying less than 45 seconds with no engine: zero landing score.

Falling over during landing or two knees on the ground: zero landing score.

Scoring

Bullseye: 250 points

Inner ring: 175 points

Second ring: 100 points

Outer ring: 50 points

2.8 BOWLING LANDING

Objective

Land with the engine off, hitting as many pins as possible.

Description

This task may be located at the airfield, or may be at one or more of the FD fuel depot points, as briefed. The location will be briefed in advance.

Five or more pins are placed along a line into wind in the landing area at regular intervals between 1 and 2 m. The pins are 50 cm high for PF classes and 100 cm high for PL classes and they are covered by dense foam. Pins will be simply standing on the ground. A pin is said to be hit when it is knocked down.

On approach, the pilot should circle the field at minimum 500ft (150m) to indicate to marshals that they are intending to attempt the task. If there are other pilots ahead of them in the queue, they should stack above them, over a field to the side of the target. Circuit locations will be briefed in advance.

When given a green flag by marshals, they must pass at least 500ft directly overhead the target, and cut the engine.

They will fly a minimum of 45 seconds and will try to hit as many pins as possible before touching the ground. Each pin knocked down before touching the ground is scored as a successful hit.

↓ Wind



Landing pins

Special rules

- A pilot may only attempt each available landing task once per day of flying. They may still land normally in FD points for fuel or rest breaks.
- The circuit to be flown will be detailed at briefing.
- The first touch of the ground by the pilot's foot (PF) or the aircraft wheels (PL) is the point from which the pilot's score will be derived. When more than one PL wheel touches simultaneously, the point chosen is the one in favour of the pilot.
- For PF classes, there will be no penalty applied for any part of the aircraft touching the ground prior to the first scoring touch of the foot or wheels, so long as a 'good' landing is achieved, as described in S.10 A3, 3.3.5.
- If a pilot runs out of fuel whilst in a queue for the task, they will be permitted to refuel and attempt the task again.

Scoring

Each pin hit successfully is worth 50 points.

Penalties

Not overflying the target or crossing it with engine on: zero landing score.

Flying less than 45 seconds with no engine: zero landing score

Falling over during landing or two knees on the ground: zero landing score.

2.9 PRECISION WING CONTROL (PF classes only)**Objective**

Land and display precise control of the wing before taking off again.

Description

This task will normally be flown in wind conditions in which a reverse launch is possible. A straight course consisting of two sticks is laid out facing approximately into wind. The precise distance between the sticks is arbitrary but they shall be a minimum of 100m apart. The pilot enters the course into wind. They must kick the first stick to start their time. They must then land in between the two sticks, bringing the wing down such that the trailing edge is clearly seen to touch the ground.

When a marshal has confirmed that wing has touched the ground they will show a green flag as a signal that the pilot may take off again.

The pilot will then launch and kick the second stick to stop the timer.

Special rules

A valid strike on a stick is:

EITHER one where the pilot or any part of the Paramotor has been clearly observed to touch it.

OR when electronic 'kick stick' sensors which have been shown to meet the standard tests are used, a valid strike is one which is recorded by the device.

- The clock starts the moment the pilot kicks the first stick and stops the moment he kicks the second stick.
- The pilot may have three attempts at kicking each stick.
- If the pilot relaunches the wing before being shown a green flag by the marshal they will incur 100% penalty for the task.
- If a launch fails, the pilot may make as many attempts as they need to relaunch the wing within the specified time limit.
- The maximum time allowed for a pilot to complete the course is 3 minutes.

Scoring

$$\text{Pilot score } Q = N \times \frac{T_{min}}{T_p}$$

Where:

N = A multiplier to be defined at the briefing. The maximum score for the task will vary between 500 and 1000 points, and will be set by the director based on the balance of points available from other task types according to the amount of flying enabled by weather. This value will be announced in the briefing before the task.

T_p = The pilot's recorded time,

T_{min} = The shortest pilot time taken to complete the task

The outcome of the calculation will be rounded to the nearest whole number.

2.10 PRECISION WING CONTROL – GROUND HANDLING (PF classes only)**Objective**

Land and display precise control of the wing before taking off again.

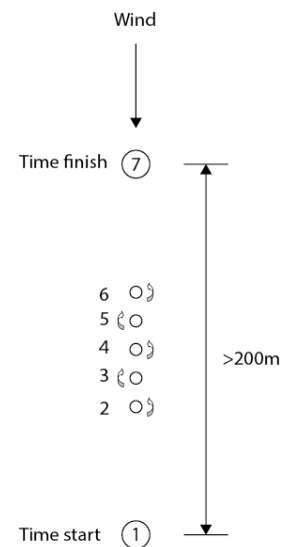
Description

A straight course consisting of two sticks is laid out facing approximately into wind. The precise distance between the sticks is arbitrary but they shall be a minimum of 200m apart.

At the centre point between the sticks a minimum of five pins are placed in line with the sticks. The pins are small plastic cones of the type used in sports training. The task director will specify the distance between each pin at the briefing

The pilot enters the course into wind. They must kick the first stick to start their time. They must then land before the first pin, keeping the wing flying in the air above them.

While kiting the wing, they shall walk or run through the course of pins, turning in alternate directions around each one to follow a slalom course. The body of the pilot must be clearly observed to pass outside of the line of pins when making each turn, and they must not touch any of the pins. After the pilot has passed the final pin, they will then launch as quickly as possible and kick the second stick to stop the timer.



Special rules

- A valid strike on a stick is:

EITHER one where the pilot or any part of the Paramotor has been clearly observed to touch it.

OR when electronic 'kick stick' sensors which have been shown to meet the standard tests are used, a valid strike is one which is recorded by the device. - The clock starts the moment the pilot kicks the first stick and stops the moment he kicks the second stick.

- The pilot may have three attempts at kicking each stick.

- The pilot may turn either to the left or to the right when rounding the first of the pins, so long as they alternate the turn direction on each subsequent pin. - If the wing drops to the ground whilst the pilot is running through the slalom course they may relaunch it as many times as they need within the specified time limit.

- The maximum time allowed for a pilot to complete the course is 3 minutes

- Each pin that is touched by the body of the pilot in the course counts as a missed target.

- Each time the pilot fails to turn outside the line of pins it counts as a missed target.

Scoring

$$\text{Pilot score } Q = N \times \frac{T_{min}}{T_{pen}}$$

Where:

N = A multiplier to be defined at the briefing. The maximum score will vary between 500 and 1000 points, and will be set by the director based on the balance of points available from other task types according to the amount of flying enabled by weather. This value will be announced in the briefing before the task.

Tmin = The shortest pilot time taken to complete the task (after penalties for missed targets)

Tp = The pilots recorded time in the course

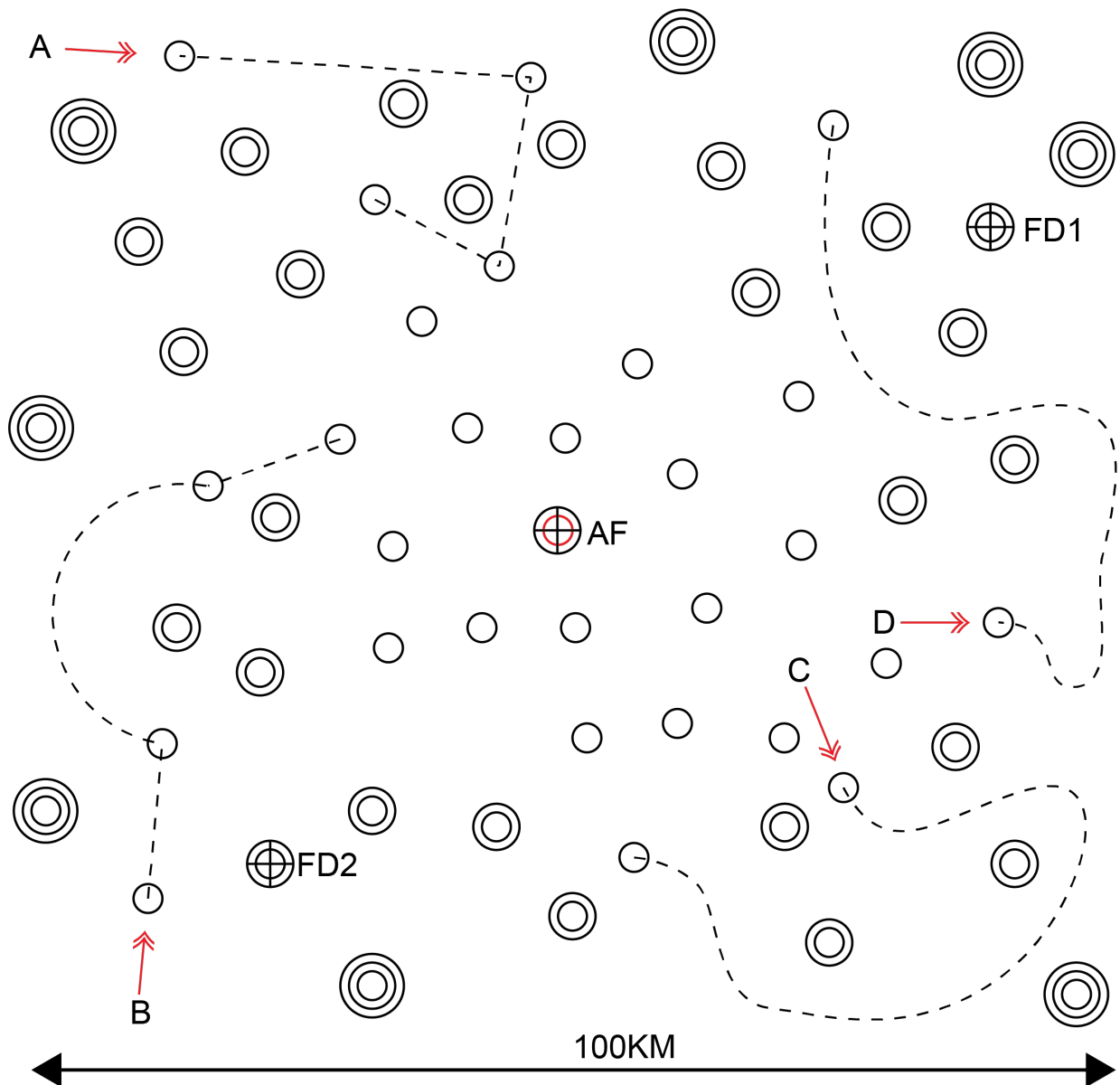
M = the number of missed targets

Vpen = the time penalty for each missed target (seconds)

Tpen = The pilots time (after penalties for missed targets) = Tp + M * Vpen

The outcome of the calculation will be rounded to the nearest whole number.

3. Appendix: Example Competition Maps and Information for Pilots



FEATURE	NOTES	POINTS VALUE
	TP – Standard Turnpoint	No. of rings indicates value of points for first crossing in the air. i.e. One ring = 10 point, Two rings = 20 points, Three rings = 30 points No points scored for each second crossing of the same point during the competitions (no penalty either)
	FD – Fuel Depot	20 points for first landing
	AF - Airfield	No points for flying through or performing normal landing. Pilots must conclude each competition day by flying back to Airfield to complete the day's task or accept 50% penalty on all points accrued during that flight.
	Route A. Task 2.2 Precision Navigation with Estimated speed	Nh = 5: This route contains a total of 5 hidden navigation gates spread over the course, and 3 timing declaration points. Vh = 25: Value assigned to crossing each navigation gate Qh = Vh * Nh = 125 (if pilot successfully crosses all hidden navigation gates).

		<p>Nt = 3 = Number of timing gates – one on each turnpoint on the course Emax = 100 = maximum error allowed on each timing gate (in seconds) Qmax = 300 = Maximum number of time precision points available for a perfect score on the task, and will be displayed on the competition map Et = sum of absolute pilot error on each timing gate. EG: Gate 1: pilot arrives 10 seconds late. Et1 = 10 Gate 2: pilot arrives 30 seconds early. Et2 = 30 Gate 3: pilot arrives 4 seconds late. Et3 = 4 Et = 54 Qe = Et * 2 = 108 Qt = (Qmax – Qe) = (300 – 108) = 192</p> <p>Total Q = Qh + Qt = 125 + 192 = 317 points</p> <p>Route may only be flown once in the competition per pilot</p>
<p>B → - - -</p>	<p>Route B. Task 2.3 Precision Navigation with constant speed</p>	<p>Nt = 5 = Number of hidden timing gates spaced along the course Emax = 100 = maximum error allowed on each timing gate (in seconds) Qmax = 500 (Maximum number of time precision points available for a perfect score on the task, and will be displayed on the competition map) Et = sum of absolute pilot error on each timing gate. EG: Gate 1: pilot arrives 10 seconds late. Et1 = 10 Gate 2: pilot arrives 20 seconds early. Et2 = 20 Gate 3: pilot arrives 5 seconds late. Et3 = 5 Gate 4: pilot arrives 25 seconds late. Et4 = 25 Gate 5: pilot arrives 45 seconds late. Et5 = 45</p> <p>Et = 105 Qe = Et * 2 = 210 Total Q = (Qmax – Qe) = 500 – 210 = 390 points</p> <p>Route may only be flown once in the competition per pilot</p>
<p>C → - - -</p>	<p>Route C. Task 2.2 Precision Navigation</p>	<p>10 hidden gate points distributed throughout this example course. Maximum points available for this route: 500</p> <p>Vh = 50 (Value assigned to crossing a hidden gate on the track) Nh = Number of hidden gates correctly crossed (crossed once, in order and proper direction)</p> <p>If a pilot crosses 8 of the 10 hidden gates successfully: Nh = 8</p> <p>Qh = Vh * Nh = 50 * 8 = 400 points</p> <p>Route may only be flown once in the competition per pilot</p>
<p>D → - - -</p>	<p>Route D. Task 2.2 Precision Navigation</p>	<p>20 hidden gate points distributed throughout this example course. Maximum points available for this route: 1000</p> <p>Vh = 50 (Value assigned to crossing a hidden gate on the track) Nh = Number of hidden gates correctly crossed (crossed once, in order and proper direction)</p> <p>If a pilot crosses 18 of the 20 hidden gates successfully: Nh = 18</p> <p>Qh = Vh * Nh = 50 * 28 = 900 points</p> <p>Route may only be flown once in the competition per pilot</p>

An external outlanding with a downwind precision navigation may be defined in the event of strong wind conditions.

