TWUK League Rules - Rev 2

Authored and maintained by BDRA Race Rules and Technical Standards sub-committee

Version Control

Date	Purpose
15th March 2024	Notes made on 5" rules regarding modification to suit Whoops
8th June 2024	First draft of Whoop rules distributed to TWUK working group
12th June 2024	Whoop rules distributed to used at Weston Park Whoop race for live testing
24th Sept 2024	Whoop rules given provisional approval by BDRA to be used this season.
25th March 2025	Correction of wording of the race setup in 8.4.1 Electronic timing from "heads-up" to "staggered"
15th Aug 2025	Updates from yearly rule revisions

Contents

Glossary of Terms

Competition Organiser: Role with overall responsibility for arranging and publicising an event to the racing community, and appointing the Race Director and other Race Officials to assist in the smooth running of the competition.

Race Director: Role with overall responsibility for managing the competition on race day. Specifically, the Race Director is responsible for the maintenance of the track, safety, spotters, flight line, adjudication, penalty procedures and delivers the safety briefing.

Race meeting: A collection of races that are usually split into a Qualifying phase and a finals phase.

Practice: The period before Qualifying during which competitors get to familiarise themselves with the track and to prepare their models for racing.

Heat: An individual race with between 4 and 8 competitors.

Qualifying round: A set of 'heats' that includes all of the competitors.
At the end of the first qualifying round each competitor will have had exactly one opportunity to qualify.
All competitions have multiple qualifying rounds to ensure each competitor has a fair opportunity to qualify.

Finals: A set of races in which competitors get to compete for podium positions. Competitors are organised by qualifying position and depending on the competition format, may have been reduced in number by one or more optional elimination rounds.

TWUK League Finals: The official BDRA end-of-season competition where the top pilots from the British Championship Series are invited to compete for the title of British Champion and accompanying trophy.

TWUK League: The sanctioned National Series that consists of Qualifying Events run to BDRA rules.

League Event: A BDRA sanctioned race meeting where a competitor can accrue points towards the TWUK League.

1. General Event Rules

1.1 Membership: To be eligible to have results count towards qualification for the National Championship Series the competitor must be a fully paid-up member of the BDRA before the first day of any Qualifying Event in which they compete.

1.2 Race Entry: Entry fees must be paid in full by the entry deadline. Entry to the event is not guaranteed until all fees have been received.

1.3 Cancellations: Cancellations must be received by the cancellation deadline, which must be defined by the race organiser and announced at the same time as the event.

1.3.1 Refunds: Fees and deposits may be returned at the discretion of the Competition Organiser, less any cancellation fees. The refund policy must be defined by the race organiser and announced at the same time as the event.

1.4 Arrival/registration: Competitors will be required to check-in with the Race Director (or designated check-in official) upon arrival.

1.5 Failsafe checking: Competitors will be required to demonstrate a fully functioning failsafe (motors cut on loss of signal) before they are permitted to access the track. All drones to be used at the event must be failsafe checked.

1.6 Insurance: Competitors will be required to provide evidence of current insurance, appropriate for the venue.

1.6.1 Open to sky events must include a Drone registration check: All drones must comply with current CAA drone regulations and must display the pilots operator ID. Should there be any question as to the validity of that operator ID then the pilot must be able to present the email from the CAA confirming that ID. Race Organisers/Directors are to confirm that a number in the 'correct format' is affixed to the drone but are not held responsible if this is not correct (due to there being no mechanism from the CAA to check this at present).

1.7 Safety: Competitors will be required to attend the safety briefing, the time of which will be advertised pre-event.

1.7.1 Latecomers: The Race Director may hold a second briefing for latecomers at their discretion. Access to fly the track will not be permitted until the competitor has attended the safety briefing.

1.7.2 Permitted flights: All drones are grounded for the duration of the event unless flying in the current heat. Hover / VTx testing can only be performed with the permission of the race director in the assigned area.

1.7.3 Video equipment safety: Powering on in the pits for testing or repair will only happen with VTx off AND props off.

1.7.4 Starting area: Drones should be placed in the appropriate position on the start line and powered on.

1.7.5 End of race procedure: At the end of the race pilots land in the designated landing area immediately and wait for the permission of the race director to enter the track area to retrieve drones.

1.7.6 Retrieval: When retrieving drones they must be powered off completely and carried off the track, do not attempt to re-arm during this time.

1.7.7 Safety incidents: In the event an incident occurs that requires the race to halt (e.g.: a fire) during a race the Race Director will issue the command to land. All pilots must land immediately and remove their goggles. Only then can the track be accessed to deal with the incident. Do not attempt to re-arm your drone during this time.

1.7.8 Malfunctions: In the event of a flight controller malfunction (e.g yaw spin), disarm immediately and let your drone drop. Do not try to regain control in this situation.

1.7.9 Test hover/flights: Test flights may be granted only by the race director in a designated area.

1.8 Track status: The track will be open for inspection and 'track walking' before the first round of races commences.

1.8.1 The track will be considered 'live' once the first round commences until the day's racing is over.

1.8.2 Access to the 'live' track can only be granted by the Race Director and Track Marshals, who will manage

the competitors entering and exiting the track before and after each race.

1.8.3 Access to the track whilst there are models in the air is strictly forbidden.

1.9 Flight line: Competitors may only fly during their race and only from the designated pilot area.

1.9.1 Competitors that are not in the race must not interfere with the progress of any pilot in the race.

1.9.2 Competitors must only enter the designated pilot area as directed by the Race Director or dedicated Race Officials.

1.10 Spotter: Typically a competitor will be required to spot for the race before their own. Any alternatives to this will be announced during the safety briefing.

1.10.1 Failure to spot (or provide a suitable substitute) as required will result in forfeit of the previous round's forfeit your current best rounds score. This is at the discretion of the Race Director.

1.10.3 Coach: A coach is permitted on the pilot line in addition to the assigned spotter. They are authorised to give tactical race advice only. The coach will not interfere with any pilot physically, visually or verbally on the pilot line. At the judgement of the Race Director coaches will be asked to leave.

1.10.4 The role of the spotter: A spotter is to observe and count laps. It is NOT the responsibility of the spotter to advise the pilot as to track direction or any missed obstacles.

1.11 Variations to these rules: Any variations to these rules that affect Qualifying Events shall be submitted by the event organiser as part of the QE application, published at the time of the event being announced, and included in the announcement on the iFPV and BMFA Contest and Event Calendars.

Variations must not be applied after an event has been opened for entry.

1.11.1 Any variations to these rules that affect the Championship, the National Championship Series or the Team Selection process shall be published by the BDRA as soon as possible on the BDRA website and emailed directly to each member.

2. Qualifying for the TWUK League Finals

2.2 Tiny Whoop UK League (TWUK): The sanctioned national series that consists of Qualifying Events run to BDRA rules, which enable qualification to the TWUK League Finals.
2.2.1 TWUK League Season: The TWUK League Season is a fixed 12-month period from the first Saturday in August to the Friday before the first Saturday in August of the following year. All Qualifying Events that occur within a season window shall contribute league points towards the season that is defined by these bounding dates.
2.2.2 Qualifying Pilots: The top 48 pilots from the TWUK League Table qualify for the TWUK League Finals. This race will determine the UK position of pilots and ultimate winner of the TWUK League.

2.3 TWUK League Format: The TWUK League shall consist of at least THREE events.
2.3.1 League Events: Each tiny whoop club is eligible to host 1 TWUK League event per season where participants gain points in the league.
2.3.2 Tie-break: In the event that two or more competitors are tied on points the following criteria shall be applied to the results, in order, until the tie is broken:

- Greatest number of league events attended
- Least differential between highest and lowest qualifying positions
- Highest single qualifying position
- The most recent qualifying positions where the tied competitors raced in the same competition
- iFPV ELO ranking

2.3.3 Minimum attendance: There is no minimum attendance but competitors will need to be ranked high enough at the end of the season to be eligible for invitation to the British Championship and/or National Team.

2.4 League Event Format: The events that make up the TWUK League will consist of at least FIVE rounds in the qualifying phase. Where a competition is abandoned, there must be at least THREE rounds completed for the result to count towards qualification for the TWUK League Finals.
2.4.1 The overall results from the event finals will count towards the league point allocation. Should the finals have to be abandoned due to unforeseen circumstances at least 50% of a competitor's best qualifying rounds will be used as a basis for the points allocation.
2.4.2 The BDRA Committee may sanction alterations to the Event format, where this is the case, the race organiser must communicate any changes to all competing members prior to commencement of the event. Smaller alterations will be sanctioned on the day by the BDRA Committee before racing commences.
2.4.3 Further details of Race Format options and technical specifications can be found in the Technical Rules and Organisers section.

2.5 Scoring System: The points allocated to a pilot depend on the placing of that pilot. This gives fixed points for any given finishing position regardless of the number of entrants. Points are allocated as follows:

Event Finish Position	1	2	3	4	5	6	7	8	9	10
League Points Awarded	200	195	190	185	180	175	170	165	160	155
Event Finish Position	11	12	13	14	15	16	17	18	19	20
League Points Awarded	150	145	140	135	130	125	120	115	110	105
Event Finish Position	21	22	23	24	25	26	27	28	29	30
League Points Awarded	100	95	90	85	80	75	70	65	60	55
Event Finish Position	31	32	33	34	35	36	37	38	39	40
League Points Awarded	50	45	40	35	30	25	20	15	10	5

In the event that there are any events with over 40 pilots participating then anyone placing 41st or below will score a nominal 1 point.

4. Pilot Conduct

4.1 Pilot Conduct: As a new and growing sport, Drone Racing has a wonderful community of passionate pilots and supporters. It is the excitement of the experience that attracts people to the sport, but still to be a supportive community that encourages new members to stay.

      3.1.1 All pilots will follow the instructions of the Race Director for both safety and the effective running of the event.

4.2 Event Conduct: The BDRA has a zero-tolerance policy to any violent, threatening, harassing, aggressive or bullying behaviour at events. Such behaviour will result in being asked to leave the event. If someone not competing at the event behaves in such a manner, they will also be asked to leave. Please note if such person(s) are associated with a specific pilot then that competitor may also be asked to leave the event. Temporary or permanent banning of offending parties may also be imposed.

4.2.1 Online Conduct: The BDRA is similarly opposed to any online conduct that can be considered bullying, harassing or victimising. Members that feel they are being subjected to such behaviour online are asked to report it to a member of the BDRA with evidence. It will be dealt with through mediation or in extreme, by temporary or permanent banning of the offending party.

4.3 Discrimination and Harassment: In line with the Equality Act 2010, no member of the BDRA will be discriminated against on the grounds of a protected characteristic; age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, and sexual orientation. Any discrimination on the grounds of being targeted against these protected characteristics is deemed as harassment. If any member is being subjected to harassment, they must report it to a member of the BDRA committee with any available evidence. It will be dealt with through either mediation or in extremis, temporary or permanent banning of the offending party.

4.4 Illegal substance abuse: In line with the Psychoactive Substance Act 2016, BDRA members are asked not to bring any illegal substances to any BDRA sanctioned event. If a member or individual at an event is suspected of being in possession of illegal substances then they will be asked to leave.

4.5 Sportsmanship clause: All pilots are expected to demonstrate sportsmanlike conduct at all times during an event.

5. Organisers Rules

5.1 The League Event Calendar: The Committee will communicate centrally with club delegates to minimise events clashing dates and maximise the number of opportunities for members to take part in as many League Events as possible. At the point regular clashes for dates occur between clubs, then section 5.2 bidding is required. This is at the judgement of the committee.

5.2 Bidding for a TWUK League Event: Organisers wishing to hold a TWUK League Event are requested to complete the application form on the BDRA website, including fully answering all the requested details about the event or the organising group/club. If forms are incorrectly, or poorly, completed then the BDRA committee reserves the right to reject and request resubmission.

5.2.1 If more than one organiser bids for the same Championship Series Qualifying Event, the BDRA Committee will take into account the scale of the event, the track record of the organiser and location of the competition (with preference being to widely distributed national events).

5.3 Championship Series competition entry requirements: Qualifying Events must be open to all BDRA members and advertised on iFPV and the BMFA Contest and Events Calendar at least ONE month prior to the event.

5.3.1 TWUK League Events will have a minimum of 10 Pilots competing.

5.3.2 It is mandatory for all entry fees for Qualifying Events to be offered at least £5 less for BDRA members over non-members.

5.3.3 Organisers should inform participants that in order for their results to count towards the TWUK League, they must be BDRA members before the first day of the event.

6. Track Specification

6.1 Track area: The track area consists of the track plus any safety features that separate it from spectators, competitors or race officials.

6.1.1 The track area is the only area within which models may be flown and must be clearly defined to prevent unauthorised access.

6.1.2 Suitable precautions must be taken to ensure models do not fly into spectators, competitors or race officials should they leave the track area.

6.1.3 Any netting should be of suitable height and strength to contain the models and where there is a risk of a model sliding under the netting then it should also be tethered at its base.

6.1.4 Any part of the track that is not protected by netting must be segregated from the flight line by a minimum safe distance of 2 meters

6.1.5 There must be a clear, unobstructed view of the track area from Race Control in order that the Race Director can be confident of maintaining safety at all times.

6.1.7 Turns will be normally marked by a clearly visible turn flag or gate. Additionally, turns can be marked by building or natural features providing they are at least 1m high and suitably marked with lighting or overt signage, eg; trees, plants, building columns, chairs, doors etc

6.2 Obstacles: The circuit will consist of at least 12 obstacles, consisting of gates, turn pylons and special obstacles to be crossed or avoided.

6.2.1 Gates and special obstacles that are intended to be flown through must have a minimum circular opening of 450mm Each gate crossed or pylon rounded will be considered as 1 obstacle.

6.2.4 Turn pylons and special obstacles that are intended to be flown around/avoided must have a minimum height of 1 meter

6.2.5: Obstacles that are intended to be flown around are considered to have infinite height for the purpose of lap validity

6.2.6 Obstacles must be of suitable quality, size, contrast with the background and be visible with analogue FPV video equipment at a distance of 10m.

6.3 Track markers: Can be implemented at the race directors discretion, but are not required.

6.3.1 Track markers, if implemented, must contrast with the background and be capable of clearly defining the track with standard FPV video equipment at a distance of 30m. LED rope light works well

6.4 Start grid: The start grid will be placed on or off the racing line, perpendicular or parallel to the racing line depending on the start grid system in use, at a point with easy access from the flight line.

6.4.1 Where the start grid is placed off the racing circuit the section between the grid and the circuit will be considered part of the race distance / time.

6.4.2 Optionally the start grid may be spaced according to the qualifying position of pilots so as to advantage those qualifying in a better position.

6.4.3 The start grid must be as a minimum 5 meters from the first obstacle.

6.5 Landing zone: A landing zone should be designated to provide a safe area within which competitors who have completed their race can land without fear of obstructing competitors who are still racing and without causing video interference.

6.6 Pilot/flight linespacing: Race Directors should take account of the challenges of the building in which they are hosting the event and site the pilot and flight lines optimally to give the best video reception possible, under the conditions. There is no minimum distance for separation but we advise testing the event venue before the TWUK League race to experiment with different setup locations.

6.7 Crashgate: [OPTIONAL] Crash gate should be positioned directly inline with and after the timing gate allowing a "top speed" finish. Ideally this should be located adjacent to the first obstacle so it is not far from

the racing line. Additionally the crash gate should be positioned away from the pilot line so stationary whoops do not interfere with whoops that are still racing (eg; VTX emissions)

6.7.2 - Crash gate should be constructed to minimise chance of whoop bouncing out, or dropping out through holes.

6.7.3 - Finish positions determined by order whoops enter the crash gate - no requirement to stay in the crashgate, only to successfully enter it.

6.7.4 - In the event more than 1 whoop enters the crash gate at the same time, the finish positions will be determined by the timing gate.

7. Competition Procedures

7.1 Competition organisation: A competition is normally organised over two stages:
  – Qualification Stage
  – Finals Stage

7.1.1 Qualification Stage: Competitors will be organised into Heats, and a round shall consist of every Heat run in sequence such that every competitor will have the opportunity to fly exactly once per round.
Competitions will have a minimum of three qualifying rounds and competitors shall obtain one score per round
The best score(s) obtained by each competitor during Qualifying shall be used to calculate their Qualifying position.

7.1.2 Finals Stage: Competitors will be organised into Finals based on their Qualifying positions.
The order in which the Competitors complete each Finals race will determine their Competition Final result.

7.2 Heat size: Heats will consist of 3-8 competitors

7.2.1 Heat size will remain the same during the qualifying rounds.

7.2.2 To maximise throughput and simplicity, competitors remain in the same heat throughout the qualifying stage.

7.2.3 If the total number of pilots participating is not neatly divisible by the ideal number of pilots per heat, heat sizes will be adjusted down to ensure all pilots are flying in a heat of at least 3 participants.

7.2.4 [OPTIONAL] Grouping: Organisers may choose to group heats to reduce waiting times between pilots flights. This can speed up events and give pilots a higher chance of performing at their best because given the short rests between flights, it is easier to find their "flow". If this is adopted, groups must be effectively announced and distributed to pilots no later than 24 hours before the race. Additionally, each group must be given the chance to check in, walk the track and ask questions before their group commences racing.

7.3 Frequency scheme and management: The video frequency scheme will consist of an appropriate number of channels within the 5.8 GHz band with a minimum 35 MHz separation, in order to accommodate the target number of pilots per heat for the event.

7.3.1 The frequency scheme will be selected by the Race Director and announced prior to the event.

7.3.2 All competitors will be required to support ALL frequencies for the competition and will be expected to be able to switch to any alternative frequency with reasonable notice in order to facilitate a fair racing format.

7.3.3 A digital video recorder (DVR) is strongly recommended in order to review races as necessary in case of doubt or complaint.

7.3.4 The competition organiser will aim to check the venue for video quality and announce any restrictions prior to the event.

7.3.5 The Competition organiser may additionally recommend a combination of equipment (e.g.: video receivers, polarised / directional antennas) to further optimise the quality of the video signal.

7.3.6 It is the responsibility of each competitor to ensure that they can set their allocated frequency.

7.3.7 Competitors may be expected to submit to a random video transmitter inspection by the Race Director upon request.

7.4 Frequency discipline: Video transmitters may only be powered on whilst the competitor is racing or at the trackside and readying their equipment for their next race.

7.4.1 Video transmitters are to remain OFF at all other times, unless an exception is made by the Race Director.

7.4.2 No other 5.8GHz transmission OF ANY KIND will be permitted anywhere on site for the duration of the event.

7.4.3 Competitors are responsible for understanding how their own equipment works, and any competitor found contravening this rule will be disqualified from the competition.

7.4.4 All long range UHF control equipment such as but not limited to TBS Crossfire should be switched off in the pits to avoid congesting sometimes limited bandwidth.

7.5 Optional race rules: All optional race variants will be announced prior to the competition.

7.6 Flight occurrences: If an obstacle is damaged or destroyed during the race: When an obstacle is

accidentally damaged or destroyed during a race, the pilots will be informed as soon as possible of the incident and how to proceed, by the Race Director.

7.6.1 - Track obstacle failure during a race should not stop the race unless it is unsafe. All pilots are to continue racing and fly "the spirit of the track" unless told otherwise by the Race Director.

8. Qualifying Procedure

8.1 Qualifying format: Each Competitor's score for each round will be the fastest time taken to fly two consecutive laps in that round.

8.1.1 Non-qualification: Competitors who don't achieve two consecutive laps. For all non-qualified competitors, seeding will be calculated in the following order:

- Competitors who have completed 2 laps in a single heat will be placed higher than competitors who have completed 1 lap.
- Competitors who have completed 1 lap in a single heat will be placed higher than competitors who have completed no laps.

Competitors with the same number of laps will then be seeded by their single fastest time to complete those laps

8.2 Qualifying heat duration: Heats will be 2 minutes duration followed by an extension to complete the current lap of 30 seconds.

8.3 Qualifying distance: Competitors may fly as many laps as this wish within the qualifying heat duration

8.4 Race start: The race should be started with 3 tones 1 second apart to allow the pilots to get ready to start the race followed by a start signal of a different distinct tone at a random interval between 1-3 seconds after the 3rd tone. Competitors must take off from the starting grid and fly directly to the start gate.
8.4.1 Electronic timing: Lap timing for Qualifying will use the "Staggered" format. Each competitor's laps shall be timed from their initial and subsequent crossing of the start gate.

8.5 Mass start: Will use a linear start grid long enough to maintain a minimum separation of 100mm between tiny whoops
8.5.1 Models must start entirely from within the start grid.
8.5.3 Starting blocks are allowed to be used providing they do not exceed a 150mm square footprint and do not interfere with other whoops

8.6 Seeding: Seeding of Qualifying rounds can be done using the following methods
        8.6.1 The national rankings table used to group competitors by similar ability.
          8.6.2 ELO table (supplied by iFPV) used to group competitors by similar ability.

8.6.2 Random pilot seeding decided from within the timing software.

8.7 Tie-breaks: In the event of a tie-break score, the competitor with the single fastest heat score will be awarded the position.

8.8 Adjustments: If race timings have to be adjusted following a race to take into account penalties then the qualifying positions will be recalculated from the adjusted times.

8.9 Restarts: Some incidents will require rerunning a race. We want to avoid doing this where possible but these are some of the situations that may arise that trigger a rerun
- Jumping the starting tone
- Plugging in or powering up an unauthorised whoop/VTX over a race
- Track feature breaking or moving out of position thereby becoming unflyable/unsafe
In the event of a track feature incident during a race, you should "fly the spirit of the track". Flying the spirit of the track means doing your best to fly through an imaginary gate where one used to be, to complete the lap. The race director, at their discretion, may call for a rerun. The final decision rests with the Race director as this is not an exhaustive list. For clarity, there will be NO reruns in the event of; mid air collisions (unless due to malicious flight lines), stuck whoops, low battery, equipment failure or breakage, poor video (unless someone has plugged in their VTX over a race)

8.9.1 Calling a Rerun: To call a rerun both pilot and spotter must call out immediately upon realisation of an issue to the Race Director to make them aware. The Race Director will make a judgement to call a rerun or continue the race. This will be announced by the Blowing of a whistle, playing of a specific audio tone, or a specific word shouted to the pilots that had been previously agreed, eg; "RERUN". Upon announcement of a rerun, spotters should ensure their pilot is aware, they stop racing and that they bring their craft in to set up for the rerun.

8.10 Video issues: If a pilot has a video issue during a race this must be brought up with the Race Director who upon DVR review will validate the situation and at their discretion may grant a rerun for the affected pilot/pilots.

9. Finals Procedure

Finals are an essential part of Qualifying Events; points for British Championship Qualification will be accrued based on final position. Finals also allow a race organiser the ability to award prizes for podium positions etc.

9.1 Finals format: Triple finals for all

9.2 Finals race duration: Finals are a race to the finish, where all pilots are given the opportunity to complete the full race distance.

9.2.1 Race completion: The race will be considered to be complete once all pilots have EITHER completed the race distance OR are deemed to have crashed out. .

9.3 Finals race distance: Race distance (in laps) will be determined for each Final as 1 less than the maximum number of laps any pilot (in that final) completed in qualifying, up to a maximum of 6 and no less than 2 laps.

9.4 Mass start: Will use a Linear Start Grid long enough to maintain a minimum horizontal separation of 100mm between tiny whoops, populated based on qualification position.

9.4.1 Electronic timing: Lap timing for Finals shall be triggered at the start of the race when the start signal is sounded. Each competitor's Final time will be the time measured when they pass the start/finish gate at the end of their last lap.

9.4.2 [OPTIONAL] Staggered Start Grid where each qualifying whoop has a linear distance advantage over the next qualifying whoop, up to a maximum of 1m per grid increment. Minimum horizontal separation of 100mm between tiny whoops to be maintained

9.5 Final scoring for triple finals: The winner of each race in the finals will be the competitor who completes the race distance in the shortest time and enters the crash gate, if implemented.

9.5.1 Position points: Points for finishing position in each of the 3 races are used to determine the final event position. For 4 pilots…

1st = 10 points
2nd = 6 points
3rd = 3 points
4th = 1 points

Pilots finishing from 5th to 8th will score zero points. If no competitors complete the race distance then the competitor who completes the most laps will be awarded the win.

9.5.2 Tie-breaker: In the event of a tie, the time taken to complete those laps will be used to decide the winner.

9.6 Final adjustments: If race timings have to be adjusted following a Grand Final to take into account penalties then the winner (and podium positions) will be recalculated from the adjusted times.

9.6.1 No announcement of the winners will be made until the adjustments have been accommodated.

10. Penalties

10.1 Invalidation of a lap: A lap may be invalidated if a competitor fails to complete all obstacles in the correct sequence and direction for that lap.

10.1.1 Combination obstacles: Special or combination obstacles with more than one opening (e.g.: dive gate, split-S, corkscrew) are only considered complete if the openings have been flown in the correct order.

10.1.2 Re-attempts: If a competitor misses all or part of an obstacle then they must retry that obstacle once it is safe to do so.

10.2 Disqualification from a race: A competitor may be disqualified from a race in the following circumstances:

- Leaving the starting block before the start signal and continuing the lap (this can be avoided by immediately flying behind the start grid and recrossing the start line after the start signal)
- Leaving the track area (e.g.: crossing of any safety demarcation)
- Hovering in/near a gate to deliberately cause an obstruction
- Colliding with another model when obstructing the racing line (i.e.: when deliberately not progressing around the track)
- Continuing to fly after completing all laps
- Performing celebratory manoeuvres after completing all laps
- Continuing to fly after being instructed to land by the Race Director
- Flying in an unsafe manner
- Any other unforeseen act that would be detrimental to the event at the race directors discretion

The disqualification will be announced by the Race Director and the pilot must land as quickly and safely as possible. No scores will be counted for the entire race. Failure to comply with may result in disqualification from the event.

10.3 Disqualification from the event: A competitor may be disqualified from an event in the following circumstances:

- Use of equipment that does not conform to the rules
- Deliberately unsafe or unsporting behaviour

11. Protests/Appeals

11.1 Protest and appeal procedure: Protest and appeal procedures including restarts for VTX reception issues and mid-air collisions will be at the discretion of the Competition Organiser.

11.1.1 Pilots will need to provide their own DVR as evidence for a protest or appeal to the race director and then this may be corroborated by the race directors DVR if available.

11.2 Adjudication: Adjudication by 3 persons who are not competing and unrelated to competitors (family members/teammates) This would always include the Race Director and could include, track marshals, event staff, technical inspection team, live stream or DVR team. To be decided in advance and available as required throughout the event.

12. Interruption Procedures

12.1 Abandonment criteria: In the Competition of an isolated transient incident, any single heat may be abandoned and restarted at the discretion of the Race Director.

12.1.1 In the Competition of a prolonged interruption (e.g. adverse weather conditions) the Race Director may consult with the Competition Organiser and/or offer a vote to all competitors to decide if racing can continue.

12.2 Abandonment procedure: If Qualifying has been completed at the point of abandonment then results for the Qualifying Competition will be accepted into the rankings.

12.2.1 Competition rescheduling eligibility: If Qualifying has not been completed at the point of abandonment then the Competition Organiser may apply for the whole Competition to be rescheduled at a later date, provided the postponement still meets the criteria for Qualifying Events.

13. Finals Format

13.1 Triple Finals for All

Objective: Similar to Finals for all but mitigates the effect of a single instance of bad luck.

Limitations: Needs more time to run (can be limited to top tier finals only).

Benefits: For big title/prize Competitions where competition may be fierce, multi-leg finals provide greater emphasis on consistency and can mitigate an isolated incident during a Final.

Implementation: All competitors will be sorted by their qualifying position and put into finals. Each final will consist of the same number of competitors as each preceding Qualifying Heats. Winner of each Final will be the first to complete the race distance or the competitor who completes the required number of laps in the shortest time.

14. Technical Rules

14.1 Aircraft Specifications:
14.1.1 Airframe dimensions: "standard tiny whoop" 65mm ± 5% diagonally from motor axle to motor axle
14.1.2 Propellers: 35mm maximum diameter. Metal, wooden or carbon-fibre propellers are not permitted.
14.2 Airframes: 4 motors maximum per airframe. A maximum of 3 airframes can be checked in for use at a single event. If additional airframes over the 3 are required then this must be authorised by the Race Director.
14.2.1 Ducts: All propellers must be fully enclosed in ducts.
14.2.3 Materials: Airframe, ducts and canopy may only be constructed from lightweight plastic or carbon fibre. No metal, wood or fibreglass. PCB's, fixings & standoffs excluded.
14.3 Batteries: 1S batteries limit and maximum of 4.35v per cell. Overcharging will be considered unsportsmanlike and dangerous behaviour and result in event disqualification on safety grounds.
14.4 Radio control (RC) equipment: Normally 2.4GHz wideband spread spectrum control; however, any control system that is legal in the UK that doesn't need active frequency management can be used providing it does not cause interference to other competitors.
14.4.1 Power output: The maximum power output both on ground and in flight for the radio control transmitter is 100mW.
14.4.2 Compliance: The competitor is responsible for compliance with regulatory and legal requirements.
14.4.3 Pit discipline: All control equipment should be switched off in the pits to avoid congesting sometimes limited bandwidth.
14.4.4 Failsafe: All RC control links must fail safe, meaning the model immediately ceases function indicated by the motors stop spinning.

14.5 Video transmission (VTx) equipment: Analog and digital video devices operating on the 5.8 GHz band may be used for first-person video.
14.5.1 Power output: The maximum power output both on ground and in flight for the video transmitter is 25 mW.
14.5.2 Bandwidth: In addition, the video output must be centred on the frequencies selected for the event with a 30 MHz maximum bandwidth. Broadcast of an additional signal with the video transmitter is not permitted.
14.5.3 Digital bitrate: Any digital video device must be set to 25 Mbps maximum.
14.5.4 Compliance: The competitor is responsible for compliance with regulatory and legal requirements.
14.5.5 Pit discipline: A pit switch to isolate the VTx when working on the model in the pits is strongly recommended. A penalty usually applies in case of unauthorised activation of a video transmitter.

14.6 [OPTIONAL] LED light unit: In order to improve the view of the models during the races for the audience, and/or to facilitate the task of the Race Director/organisational team, the organiser may request the competitors equip their models with an RGB LED light unit capable of producing different colours so that each model in flight will more easily identifiable.
The recommended specifications for the LED light unit will be as follows:

- Minimum of 2 RGB LED light bulbs, or minimum length of 50 mm of RGB LED strips with obfuscated light source (such a COB LED).
- LED light sources must be uniformly distributed across all the ducts or canopy of the model, allowing it to be clearly visible from any angle.
- Required colours: Blue - Green - Red - Yellow - Cyan - Magenta
- Capability to easily switch to an assigned colour before each race

The Race Organiser is encouraged to announce the colours and assignments as soon as possible before the event but competitors should acknowledge that circumstances outside of the Race Organisers' control may require further changes once the event commences..

14.7 Firmware aids: To progress with the technological advancements,e.g Anti-crash and Self-righting, 'Turtle Mode' is permitted.

14.8 Launch aids: Personal launch pads are permitted as long as they don't obstruct or impede the start of other competitors. Race organisers may impose additional constraints on the dimensions, positioning and use of starting blocks.

14.9 Electronic timing equipment: The British Championship Series and the Championship Competition itself will be run using the ImmersionRC LapRF VTX-based timing system or similar equipment. The system chosen must offer similar reliability and accuracy to an ImmersionRC LapRF system.
14.9.1 A race heat normally lasts for 2 minutes with 30 seconds to finish the lap each competitor is on.

14.10 Venue-specific restrictions: A track or venue may require further technical restrictions in order to maintain safety, most notably a reduction in battery cell count, frame or propeller size. The competition organiser must state these restrictions at the same time as the event is announced, and must not change these restrictions once the event is open for entry.