

USDRA Drone Racing Rules & Regulations



2024 - 2025 Edition

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TEAMS



Team Formation:

- Each participating school must form a team consisting of a minimum of 4 students and a maximum of 6 students.
- Teams should be composed of individuals with varying levels of experience to promote diversity and skill development within the team.

Participation Requirement:

- Every team member is eligible to participate in the races, ensuring that all students have the opportunity to fly and contribute to their team's performance.

Balancing Heats and Points:

- Teams with fewer than 6 members may need to strategize to balance out the heats and points distribution.
- In cases where a team has fewer than 6 members, it is the responsibility of the team to determine which pilots will race twice to ensure fair competition.
- Teams should consider factors such as pilot skill level, drone performance, and race strategy when deciding which pilots will race twice.

Team Representation:

- The coach or representative serves as the official spokesperson for the team and represents their interests during meetings, discussions, and any interactions with event organizers or other teams.
- They should advocate for the fair treatment of their team members and ensure that all decisions regarding team participation and race management align with the team's best interests.

Communication and Coordination:

- Effective communication between the coach or representative and team members is essential for maintaining organization and cohesion within the team.
- The coach or representative should keep team members informed of important updates, schedule changes, and any other relevant information related to the competition.

Compliance and Accountability:

- The coach or representative is responsible for ensuring that the team complies with all rules and regulations outlined in the competition rulebook.
- They should promptly address any concerns or issues that arise during the event and work with event officials to resolve them fairly and transparently.

SCORING

Points Allocation:

- First Place: +100 points
- Second Place: +75 points
- Third Place: +50 points
- Fourth Place: +25 points



Race Performance:

- Points are awarded based on the finishing position of each pilot.
- First-place finishers receive the highest point allocation, followed by second-, third-, and fourth-place finishers.

Accumulation of Points:

- Team scoring is based on the cumulative points earned by all team pilots.

Determining Team Standings:

- The total points the team's pilots earn determine their position in the race standings.

Advancement Based on Team Scores:

- Teams advance to subsequent rounds based on the cumulative points earned by their pilots.

Proportional Scoring:

- In the case of fewer than 12 teams, the scoring system remains proportional to accommodate the reduced competition size.

Equitable Scoring:

- The scoring system is designed to ensure equitable point distribution, even when dealing with an odd number of teams.

Bye-Round Impact:

- Teams with a bye in an odd-numbered round still earn points based on their pilot's performance in the previous or subsequent round.

Accumulated Points:

- In the Championship Round, the cumulative points earned by each team's pilots over 3 heats determine the overall winner.

Crowning the Champion:

- The team with the highest total points after the Championship Round is crowned the overall champion of the race/tournament.

SINGLE ELIMINATION



Round 1: Head-to-Head Matchups

- All participating teams, totaling 12, engage in head-to-head matchups.
- Each race consists of 4 pilots, with 1 representative from each team.
- Pilots have 1 heat to accumulate points for their respective teams.
- The top 6 teams with the highest points advance to the Quarterfinals.

Quarterfinals: Continuing the Competition

- The top 6 teams from Round 1 progress to the Quarterfinals.
- Similar to Round 1, each race involves 4 pilots, with 1 from each team.
- Pilots, once again, have 1 heat to earn points.
- The top 3 teams from this stage move on to the Semifinals.

Semifinals: Advancing to the Penultimate Round

- The top 3 teams from the Quarterfinals compete in the Semifinals.
- The format remains with 4 pilots per race and 1 heat to earn points.
- The top 2 teams from this stage advance to the Championship.

Championship: Determining the Overall Winner

- The top 2 teams from the Quarterfinals enter the Championship Round.
- Races continue with 4 pilots, 2 from each team.
- Pilots now have 3 heats in total to accumulate points.
- The team with the most points after 3 heats is declared the overall champion and winner of the race/tournament.

Winner Declaration: Crowning the Champion

- The winning team from the Championship Round is crowned the overall champion.
- This team secures victory in the race/tournament.

Adjustments for Fewer Teams:

- If there are fewer than 12 teams, adjust the number of advancing teams in each stage accordingly.
- Maintain the structure of head-to-head matchups, ensuring fairness in competition.

Handling an Odd Number of Teams:

- Introduce a “bye” round in which one team automatically advances to the next stage without competing.
- Determine the team with the bye based on factors such as previous performance or random selection.

DOUBLE ELIMINATION



Winners Bracket:

Round 1:

- All teams compete in head-to-head matchups.
- Each race consists of 4 pilots, with 1 from each team at a time.
- Pilots get 1 heat to earn points for their team.
- The top 6 teams with the most points advance to Winners Bracket Round 2.

Round 2:

- The top 6 teams from Round 1 compete.
- Like Round 1, each race has 4 pilots, with 1 from each team.
- Pilots get 1 heat to earn points.
- The top 3 teams progress to Winners Bracket Round 3.

Round 3:

- The top 3 teams from Round 2 compete.
- The format remains with 4 pilots per race: 1 from each team.
- Pilots get 1 heat to earn points.
- The top team advances to the Winners Bracket Final.

Winners Bracket Final:

- The top team from Round 3 faces another top team.
- The format remains with 4 pilots per race: 1 from each team.
- Pilots get 1 heat to earn points.
- The winning team advances to the Final Round.

Losers Bracket

Elimination Round 1:

- The 6 teams that did not advance in Winners Bracket Round 1 compete.
- The same format as the Winners Bracket Round 1 is employed.
- The bottom half of teams (based on points) are eliminated.

Elimination Round 2:

- The 3 teams that did not advance in Winners Bracket Round 2 and losers from Elimination Round 1 compete.
- The same format as the Winners Bracket Round 1 is employed.
- The bottom half of teams are eliminated.

Elimination Round 3:

- The 3 teams that did not advance in Winners Bracket Round 3 and losers from Elimination Round 2 compete.
- The same format as the Winners Bracket Round 1 is employed.
- The bottom half of teams are eliminated.

DOUBLE ELIMINATION



Losers Bracket Final:

- The team that lost in the Winners Bracket Final competes against the winner from the last Elimination Round.
- The same format as the Winners Bracket Final is employed.
- The winning team advances to the Final Round.

Championship Round:

- The winner from the Winners Bracket Final faces the winner from the Losers Bracket Final.
- All points are reset.
- Each team races for first place by scoring higher than the opposing team.

Handling an Odd Number of Teams:

- Introduce a “bye” round in which one team automatically advances to the next stage without competing.
- Determine the team with the bye based on factors such as previous performance or random selection.

FALSE START RULE

Definition of False Start:

- A false start occurs when a pilot takes off before the designated starting signal.

Points Deduction for False Start:

- Any pilot committing a false start incurs a penalty of -10 points.

Objective of the False Start Rule:

- The penalty aims to maintain fair play and ensure that all pilots adhere to the designated start protocol.

Enforcement of the False Start Rule:

- Officials closely monitor the start of each race to identify false starts.
- Immediate action is taken upon detection, and the penalty is applied to the pilot responsible.

Impact on Individual Pilot Score:

- The -10 points for a false start directly affect the individual pilot's overall score for that specific race.

Communication of Penalties:

- Pilots and teams are promptly informed of penalties, ensuring transparency in the enforcement process.

Appeals and Review:

- Provisions may be allowed for pilots or teams to appeal false start penalties, allowing for a thorough review of the incident and ensuring the accuracy of enforcement.
- If an appeal is granted, teams will be notified of the changes.

Integration with Overall Scoring:

- The penalty is integrated into the overall scoring system, impacting the individual pilot's total points for the race and potentially influencing their team's standing.



USDRA ALLOWED DRONE SPECIFICATIONS

Drone Size	Size requirement: 65mm
Motors	Maximum specifications: 0802 27000kv Brushless motor
Propellers	31mm Propeller
Camera	Any FPV Camera
Canopy	Custom Canopy allowed, including Canopies with fins, providing flexibility for personalization
Weight	Minimum weight of 23g without the battery
Battery	Power source: 1 cell (1s) No mAh (milliampere-hour) restrictions

Compliance with Specifications:

- All drones will be checked before racing to ensure they meet the requirements.
- Drones participating in the race must adhere to the specified requirements outlined above.

Camera Guidelines:

- Any FPV Camera is acceptable.

Canopy Customization:

- Custom Canopies are allowed, allowing racers to personalize the appearance of their drones.
- Canopies with fins are allowed.

Weight Restriction:

- The drone must have a minimum weight of 23g without the battery.

Battery Specifications:

- The power source must be a 1-cell (1S) battery.
- There are no restrictions on the milliampere-hour (mAh) capacity of the battery.

Overall Compliance:

- Drones meeting these specifications are eligible for participation in USDRA races.
- Participants are responsible for ensuring their drones comply with the outlined requirements for fair competition.

USDRA REGULATIONS



- 1. Crashed Drones:** Crashed or stuck drones may only be flipped with turtle mode. Teammates are not permitted on the track and may not touch the drone during a race. A stuck drone that is unable to finish will lose the race and will be penalized as “Did Not Finish” (DNF).
- 2. False Starts:** Any team that starts before the designated starting signal in any race will be penalized 10 points. Any false start will cause the race to be started over. Two false starts in a row by any team will result in a DNF for that race.
- 3. Missed Gates:** All gates must be cleared to complete a race. Each drone must enter each gate in the intended direction. Failure to complete all gates in the intended order will result in the pilot earning no points for that heat.
- 4. Mid-air Collisions:** Mid-air collisions may not be penalized unless determined to be intentional. Any display of reckless or unsafe behavior is strictly forbidden, and an infraction will result in a 10-point penalty.
- 5. Distractions:** A 10-point penalty will be given to any team member who intentionally comes into contact with or disrupts a competitor or their equipment while the competitor is in flight. The coach must make disputes which will be finalized by the Racing Director before the next round moves forward.
- 6. Protests:** In the event of a protest about the ongoing heat, it is imperative for the Team Coach or Team Manager to promptly alert the Racing Director before the teams are excused from the stage. The Racing Director will make a final decision before moving on to the next round.
- 7. Technical Issues:** It is the responsibility of each team to ensure its equipment is in working order before coming to the race line. Races will not be rerun due to equipment problems.
- 8. Reruns:** Any race may be rerun at the discretion of the Racing Director if external factors are deemed to have interfered with the race.
- 9. Don't Plug-In:** Drones are not to be plugged in the pit area because they will cause interference with video feeds. Any drone plugged in the pit area will incur a penalty of -10 points.
- 10. Gate Direction:** All drones must enter the gates in the intended direction outlined in the course map. All pilots will get a course walkthrough and have the chance to receive clarification on any gate direction questions before the race begins.