



West Coast Multi Rotor FPV Racing Handbook Best Practices and Guidelines for Competitive Drone Racing

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Introduction

Welcome to West Coast Multi Rotor FPV racing! This handbook provides essential guidelines, best practices, and regulations for safe and competitive drone racing. Whether you're a beginner or experienced pilot, following these guidelines ensures fair competition and maintains the safety standards our community values.

Mission Statement

To promote safe, fair, and exciting FPV drone racing while fostering a supportive community of pilots across all skill levels.

Club Membership



What is a Member?

A West Coast Multi Rotor Club (WCMRC) member is someone who has officially joined the club and maintains active membership status. Members enjoy full participation rights in all club activities, events, and competitions.

Membership Benefits

- Access to all club racing events and competitions
- Voting rights in club decisions and elections
- Eligibility for championship points and season awards
- Access to member-only resources and communication channels
- Priority booking for events with limited capacity
- Discounted entry fees for club events

Member Responsibilities

- Maintain current membership fees and registration
- Follow all club rules, safety guidelines, and code of conduct
- Participate respectfully in club activities and community
- Support club events through volunteering when possible
- Represent the club positively in the broader FPV community

Member Definitions

- Definitions, terms and conditions, can be found in the WCMRC Charter document found on our website.
- <https://westcoastmultirotors.com.au/>

Safety Guidelines

Flight Safety Rules

- *Never fly without a spotter* when using FPV goggles
- *Maintain visual line of sight* whenever possible
- *Respect altitude limits* (typically 120m AGL)
- *Immediate landing* if control issues arise
- *No flying over spectators* or non-participants
- *Emergency protocols* must be known by all pilots
- *Follow all race director and CASA regulations*

Pre-Flight Safety Checklist



- *Visual Inspection*: Check frame integrity, propeller condition, and motor mounts
- *Battery Check*: Verify voltage levels and secure mounting
- *Transmitter Test*: Confirm control responsiveness and failsafe operation
- *FPV System*: Test video feed clarity and antenna security

Spectator Safety

- Designated spectator areas with physical barriers
- Minimum 30-metre buffer zone from racing circuit
- Safety briefings before each race session
- Emergency evacuation procedures clearly marked

Emergency Procedures

- If a hazard occurs (e.g., person/dog on the field, fire, etc.), the Race Director (and only the Race Director) will call it and all pilots must land and disarm immediately
- This is a safety requirement - failure to do so may result in disqualification or removal from the event
- In the event of a medical emergency, fire, or police are required, call 000

Equipment Requirements

Technical Requirements:

- Maximum motor count: 4 (quadcopter configuration)
- Functional failsafe system required
- *Failsafe Configuration*: Drones must have "Drop" as their failsafe. Should a failsafe occur, propellers must stop spinning. No use of automated landing or return-to-home is permitted
- *Scrutineering*: Drones must be scrutinized to evaluate their failsafe procedure and airworthiness prior to flying. Approved drones will be marked with a piece of coloured tape

FPV Equipment Standards

- *Video Transmitter*: 25mW (analogue) or 25 megabit (digital)
- *Frequency Coordination*: 5.8GHz band, specific channels assigned
- *Antenna Requirements*: Circular polarized recommended
- *Recording Device*: Event Rx will capture video feed, but DVR is encouraged

Safety Equipment



- *Kill Switch*: Remote emergency stop capability
- *Battery Monitor*: Low voltage warning system
- *Identification*: Pilot name in OSD is recommended

Technical Guidelines

Digital Systems

Digital FPV systems are permitted and follow the same power output restrictions as analogue systems (25mW maximum). Popular digital systems include DJI, HDZero, and Walksnail. Pilots using digital systems must coordinate with race officials to ensure compatibility with event receiver equipment and video capture systems. This may require tethering to event rx system. *PLEASE be aware, especially after racing, not to damage equipment you are connected to.*

Frequency Management

Channel Assignment Process:

- Check frequency screen and listen out for race director calling channels out
- Power limit compliance verification
- Pre-flight frequency conflict check
- *Plugging in video transmitters in the pits is forbidden without prior authorization of the Race Director*
- Should a race be affected by unauthorized VTX power-up, that race will be restarted and the offending pilot may be penalized at the discretion of the Race Director

Power Output Regulations

- All Racing: Maximum 25mW or 25 megabit

Event Preparation



Pre-Event Checklist

Week Before:

- Confirm attendance on event page, no later than night before. If under 24 hours, please let event organizers know directly
- Pre check of all equipment is fit for flying

Day of Event:

- Arrive early for track construction and pre event instruction
- Payment of \$20 for Club members and \$30 for non members. Bank transfer, cash or card
- Bring folding chair
- Prepare snacks and hydration for long day
- Toilets and power are available at the club

Race Event Structure

Event Timeline

Race Day:

- 8:00 AM - 10:00 AM: Track construction, scrutineering and track walk
- 10:00 AM - 12:00 PM: Time Trials
- 1:00 PM - 3:00 PM: Race rounds and disassembly of track

Emergency Track Procedures

In the event of a track incident (fire, track obstruction etc), please refer to the Safety Management Document on our website.

Race Formats

Time Trial Qualifying

- Individual timed runs to determine starting positions
- Best single fastest lap time out of 4 attempts counts
- 3 minute maximum run time per attempt
- Penalties applied for gate violations or course deviations
- If a pilot doesn't complete a single qualifying time, will be placed at the bottom of all groups

Heat Racing



- 4-6 pilots per heat based on qualifying times
- Minimum 3-lap races with fastest overall position winning
- Maximum 3-minute race duration
- Over 8 rounds

Hole Shot

- *Hole shot* is from launch to the start gate
- Once Hole shot is achieved, racers are in *RACE state*
- A race is deemed to have started once pilots complete holeshot

Racing Rules and Procedures

All rules are applied at the discretion of the Race Director. Valid disputes will be considered, but the Race Director's decision is final.

Gate and Obstacle Completion

- All gates/obstacles must be completed in the order described during the track walk
- If a gate/obstacle is missed (i.e., not passed through, passed through in the wrong direction, etc.), the pilot must circle back to complete it
- Deliberate Gate Violations: Should a pilot deliberately miss a gate they will be disqualified from that race. Repeated violations may result in removal from the event

Missed Element Penalties

- *During Racing*: If an element of the track is missed accidentally and the pilot continues with/finishes the race, a 5 second time penalty will be added to the completed time
- *During Qualifying*: Accidentally missing a gate and continuing with the course during qualifying will disqualify that lap

Restart System

- If a pilot false starts or a collision occurs before the start gate, the race can be reset
- Pilot must call out restart ASAP to race directors, before a single completed lap has been made from any pilot in that race. If a completed lap has been made and no call to restart, any call from that point will be null
- Collision Restart: If two or more pilots collide with each other prior to completing holeshot, they're permitted a race restart with a fresh battery if necessary. This will be called by the Race Director
- Other Restart Situations: If a pilot doesn't complete holeshot for another reason (e.g., failsafe, poor/no video, etc.), a restart may be called at the discretion of the Race Director. Mistakes caused by user error that result in failing to complete holeshot (e.g., hitting the ground, propellers on backwards, etc.) may also be called for a restart, but are less likely to be taken into account



False Start Procedures

- Any pilot on the blocks who false starts will be permitted to place their drone back on the blocks once
- If the same pilot false starts again in the same race, the "Presidents Rule" is invoked and you will be placed backwards on the starting block
- A third false start disqualifies that pilot from the race
- A false start is called solely by the Race Director

Joker Lap

- A Joker may be added to a race round
- The inclusion of a Joker lap will be notified and set at the start of the round
- Joker lap can only be counted once in *RACE state*, e.g., completion of hole shot
- Joker lap is to be called out when the pilot is or just has completed the Joker element, to race director
- Failure to complete a Joker lap will be treated as a failure to complete an element

Race Finish and DNF Procedures

- If a race finish is considered too close for the resolution of the timing system to definitively call, a video replay of the finish will be called, utilizing the livestream recording and any DVR from pilots' goggles if necessary
- A pilot who doesn't finish a race will place last in that race
- Should multiple pilots not finish, then the pilot who completed more of the race will place the highest, and so on
- If it is unable to be determined who completed more of the race, all pilots who didn't finish will compete to throw a propeller the furthest, with this result used to determine finishing order

Crash Recovery

- If a pilot crashes during a race but can recover the drone using "turtle-mode" or similar, they may do so providing the aircraft is still airworthy and still able to fly in a controlled manner
- All other recoveries must only be made once race is completed.

Video Replay Requests

- Any pilot requesting a race video replay/review will be permitted one if the request is reasonable

Race Interference and Conduct



- If the Flight Line Director determines that a pilot intentionally crashes into another pilot or deliberately causes another pilot to crash, that pilot will be disqualified from the race and, if a repeated offense, removed from the event
- If the Flight Line Director deems any pilot to be competing in a manner that is deemed unfair or unsportsmanlike, the FLD has the discretion to disqualify a pilot from a particular race, or the entire event

Race Readiness

- The Race Director will call the next group of pilots up once the previous race has completed
- Please ensure you're ready with your goggles, transmitter, drone(s), and battery to minimize waiting

Scoring and Championship System

Points scoring will either be *STANDARD* or *VARIABLE*. This will be determined prior to season commencement.

Qualifying Points Structure

No points awarded for qualifying - race positions and groups are determined by fastest single lap in qualifying

Race Points Distribution

Heat Race Points:

- 1st: 20 points
- 2nd: 19 points
- 3rd: 18 points
- 4th: 17 points
- 5th: 16 points
- 6th: 15 points
- *(Points continue descending by 1 for each subsequent position)*

Championship Points

- Points are tallied based on race finishes over the season (8 rounds per season)
- The top pilots from the rounds will then automatically qualify into the top group of the Season Grand Final

Dropped Round Policy

- One round of a pilot's lowest round score will be dropped, known as a "*Dropped Round*"



- If an event is cancelled, no points are allocated to any pilot for that round
- If a second round is cancelled during the season, the dropped round points are reapplied and 0 points are added to each pilot, for the second lost round

Variable Points System

- When this is active, the lowest placed in group one and the highest in group two, based on qualifying times, will have the opportunity to possibly change groups
- This will be based on their completed *RACE times* for three races
- IF, the group 1 pilot *RACE times* are slower than the group 2 pilot, the group 2 pilot will move to group 1 and the group 1 pilot will move to group 2
- There has to be a minimum of *two faster* races to qualify for the change
- IF under 2, no change will be made
- Once these three races are completed and pilots have been moved, no more changes will be made for the remaining day's races

Club and Racing Etiquette

Pre-Race Conduct

- Arrive early for track construction, channel allocation, scrutineering and track walk
- Respect frequency coordination and assigned channels
- Share practice time fairly with other pilots
- Keep pit areas organized and debris-free

During Competition

- *Clean Racing*: Avoid intentional blocking or aggressive manoeuvres
- *Communication*: Communication is through race director and prompt call out if there is an issue
- *Sportsmanship*: Congratulate competitors and accept decisions gracefully
- *Focus*: Minimize distractions for competing pilot
- *No plug in*: Do not plug in to any drone in the pits while a race is in progress

Post-Race Protocol

- Immediate battery disconnection after landing
- Clear the course quickly for next heat
- Report any technical issues to race officials

Community Standards

- Mentor new pilots and share knowledge



- Maintain positive attitude regardless of results
- Support event organizers and volunteer efforts
- Promote the sport through professional conduct

Code of Conduct

Any breaking of this code will result in removal from the event at the discretion of the Race Director. Further measures may be imposed if deemed necessary.

Language and Behaviour

- Keep swearing and explicit language to a minimum. Events may be livestreamed and spectators will be present
- Excessive cussing constitutes a violation of this code, determined at the discretion of the Race Director
- No outbursts. We understand the adrenaline racing brings, but need to manage what we say and how we act regardless

Inclusivity and Representation

- We are representing the sport and hobby of drone racing
- We want to show that we're inclusive and welcoming to all new and existing members regardless of age, gender, sex, ethnicity, political beliefs, technical knowledge, or flying skill/experience

Respect for Officials

- All committee members, other officials and assistants are volunteers who offer their own time to run these events
- Treat them with respect

General Conduct Principles

- Maintain professionalism at all times
- Accept Race Director decisions with grace
- Contribute positively to the club's reputation
- Support fellow pilots and the broader FPV community

Resources and Contacts

Event Officials



- *Race Director*: Primary contact for all racing matters
- *Flight Line Director*: Manages racing operations and on-field conduct
- *Safety Officer*: Responsible for maintaining safety standards
- *Technical Inspector*: Equipment compliance verification
- *Frequency Coordinator*: Channel assignments and interference issues

Emergency Contacts

- *In the event of a medical emergency, fire or the police are required, call 000*

Useful Club Resources

- *West Coast Multi Rotor*: <https://westcoastmultirotors.com.au/>
- *WCMRC FB group*: [WCMRC Facebook Group](<https://www.facebook.com/share/g/1BTVtTVUG/>)
- *WCMRC Members group*: [WCMRC Member Page](<https://www.facebook.com/groups/597686500433269>)

Conclusion

This handbook represents the collective knowledge and best practices of the West Coast Multi Rotor racing community. Following these guidelines ensures not only your safety and success but contributes to the positive growth of FPV drone racing as a sport.

Remember that racing is about pushing limits while maintaining respect for fellow competitors, safety protocols, and the venues that host our events. Whether you're pursuing your first podium finish or defending a championship title, these principles will serve you well throughout your racing career.

Fly fast, fly safe, and most importantly -- have fun!

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This handbook is a living document and will be updated based on community feedback, rule changes, and safety developments. Suggestions and improvements are always welcome through official channels.