

FPV UK Drone Racing Safety Guidelines

Selecting a suitable racing course

The Air Navigation Order requires that aircraft are separated from spectators by at least 50 metres, so you should ensure that your chosen site can accommodate a cordoned flying area and 50 metres of separation.

Flying must be at least 150 metres from a congested area so you must ensure that your cordoned flying area is at least 150 metres from *“any area of a city, town or settlement which is substantially used for residential, industrial, commercial or recreational purposes”*.

You must not fly close to airports/ airfields, prohibited areas, danger areas or restricted areas (such as nuclear sites and prisons) so it is important to make sure that the racing course is away from any of these areas. You can check for these types of airspace on www.noflydrones.co.uk or on the [Drone Assist app](#).

Drone insurance claims are almost exclusively for damage to motor vehicles. Make sure vehicles are parked a safe distance away.

Indoor flying is not governed by the CAA so the rules above do not apply, however it is a good idea to cordon your flying area off from the public and keep the aircraft a safe distance away from spectators nonetheless. Netting can be very useful for managing risk at indoor flying events.

Assessing and addressing risk

Your risk assessment needn't be complicated but it's a good idea to make a list of the potential risks of your activity, and the measures that you will take to avoid or minimise those risks. And plan for what you will do if they do occur. An example of this could be as simple as making sure that non-flyers stay behind a cordon.

Organising your event

It is a good idea to assign an Event Director who will have overall charge on the day. This person should brief the pilots and marshals and control the day (see “on the day” section below).

If required marshals should be assigned to ensure the safe running of the day. For example a marshal may be required to prevent members of the public walking into the cordoned area.

To ensure that you are prepared for the the number of people who will attend an event it may be useful to assign tickets (either free or chargeable) using EventBrite or a similar service. You will then be able to prepare accordingly for the number of people who are intending to come (minus a percentage of no-shows).

This list of items may be useful for your event:

Obstacles (flags, air gates, inflatables, etc), arrows (to guide competitors around the course), tent pegs (for arrows/ banners/ air gates, etc), clothes pegs (for FPV frequency control), air horns (for director/ marshals), high visibility jackets, cordon tape, walkie talkies.

Frequency management

Radio frequency interference is a crucial consideration in a race environment and must be managed properly for a safe and enjoyable event. 2.4 GHz radio control systems are frequency hopping and spread spectrum and allow multiple aircraft to fly simultaneously but analogue FPV systems are not.

It is a good idea to ask each competitor to submit their control frequency and their video frequency before the day - perhaps as part of the EventBrite ticket process. This will allow the organisers to create racing slots for compatible aircraft/ pilots - with no RF interference issues.

Each pilot should also be aware of how to change the frequency of their equipment on the day in case they make it to the quarter/ semi/ finals and have to fly against someone who was on clashing frequencies.

Race frequency management systems do now exist; such as the ImmersionRC Tramp HV system which uses an NFC wand to assign frequencies and powers to each competitor at race time (and the rest of the time their transmitters are set to an ultra low power output).

On the day

It is best to set out your cordon using fencing or cordon tape and then set up your flying area 50 metres from this cordon.

The event director should hold a pilot's briefing before any flying. All pilots should attend this briefing.

In the pilot's briefing the event director should explain the rules of the day - including, but not limited to:

- When you can and when you can't power up equipment (to avoid frequency clashes). Perhaps allocating clothes pegs - one per band.
- Where you can and where you can't fly (basic principle; do not fly over people, do not turn towards people, allow at least 50 metres between the spectator cordon and flying aircraft).
- How to identify Safety Marshals (eg Green High Visibility jackets).
- What each fog horn sound means (a sound of the horn will usually mean; stop where you are and land).
- The maximum altitude for the day.
- Where you can and where you can't stand (including when you can make "the walk of shame" to collect your aircraft).
- Insurance: the event director should check that each pilot has valid 3rd party liability insurance.
- Who will be the spotter ("competent observer") for each person in each race (this is a CAA requirement for FPV flying).

Remember: safety is the primary concern - if any pilot feels that safety has been compromised they should stop racing and land the aircraft safely.

It is a good idea to take all of the pilots and walk around the track together to get a feel for the course. Most racing rules include one practice lap for each competitor.