ERSA Freestyle FPV Rules

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Freestyle FPV Definition

Freestyle FPV is a free flowing expression of pilot skill in the control of their air craft. Freestyle is a display of tricks and manoeuvres performed within the freestyle arena and set to music chosen by the pilot.

In essence Freestyle is a celebration of both the skills of the pilot and the unique flight capabilities of drones.

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1.**GENERAL SPECIFICATIONS OF THE FPV FREESTYLE MODEL**

1.1. Weight and size of the model

*The total weight of the model including all equipment necessary for flight (including batteries) shall not exceed 1 kg. Distance between axes of the engines shall be less than 300 mm and more than 160mm. This distance is measured on the diagonal of the engines’ axes.*

1.2. Motorization

*Only electric motors with a maximum voltage of 17.0 volts (4S) are allowed.*

1.3. Propellers

*Maximum diameter: 6 inches (15.2 cm). Full metal propellers are forbidden.*

1.4. Other equipment

*The model must be equipped with a fail-safe device, the triggering of which stops the motorization in the event of control signal loss. The failsafe must trigger within 3 seconds of a signal loss.*

*It is forbidden to use a pre-programmed manoeuvring device (GPS Guidance). Any system for automatic positioning and/or path rectification in longitude, latitude or height is forbidden e.g. Sonar.*

*The use of self-levelling flight modes is not permitted, all aircraft must be flown in unaided mode (Acro)*

1.5. Frequencies

*Frequencies used can only be those authorised in the country in which the contest is organised. Ensuing associated emission power limitations should be respected. This concerns the radio control system of the model as well as the video transmission device of the on-board camera.*

*VTX frequencies and power output levels will be determined by the organiser before the event and competitors will be informed no less than 10 days before the competition.*

*The use of digital VTX systems is permitted in general but the final decision is that of the individual organiser.*

2. **FREESTYLE ARENA**

2.1. Arena Size

*The area in which freestyle competition is conducted will be known as the “Arena”. The size of the arena should be no less than 30 meter by 30 meter and no more than 50 meter by 50 meter.*

2.2. Safety

*The boundaries of the arena should be clearly defined in such a way that the competing pilot can easily see the boundaries within in which they must stay.*

*Beyond the Arena boundary there must exist a safety line no less than 30 meters out from the Arena boundary.*

*The pilot and judging area must adjacent to the arena boundary and protected by means of a strong safety net capable of stopping a drone at full speed with a maximum of 1-meter movement of the net. Judges and pilots must be 2 meters’ minimum distance back from the safety net.*

*The Maximum permitted fight altitude is 50 meters or 150 feet.*

2.3. Freestyle arena design

*Organisers are encouraged to be creative in their design of the freestyle arena. The arena should include obstacles for the pilot to use at their discretion as well as open areas which allow for safe unhindered manoeuvres.*

*The arena design should take spectators into consideration and be designed in such a way as to allow spectators to safely enjoy the tricks and displays performed by the pilots.*

2.5. Obstacles

*Obstacles within the arena are designed to give the competing pilots structures to aid their display. There should be a good selection of Obstacles including air-gates Pylons etc. and if possible a full sized tower.*

*Obstacles should be placed around the arena so as not to restrict the flow of the display but to enhance it allowing the pilot space between obstacles to perform their display.*

*There must be a small area closest to the spectators and Judges that is free of obstacles to allow for the display of intricate tricks and manoeuvres such as low level flips.*

2.6. Music

*The pilots display will be set to music of their choice to enhance the atmosphere of the display. An adequate P.A. system must be available through which to play the pilots musical piece. The volume of the music should be 50% of that of the aircraft to give the best balance between music and the sounds of the aircrafts motors.*

2.7. Other points

*The use of large LED screens will enhance the spectator’s enjoyment and is recommended where possible.*

*3.* ***FREESTYLE FORMAT***

*3.1. General rules*

○ *The pilot must perform their 3-minute display in First Person View (FPV)*

*○ Each Pilot will be given 1 minute warm up period in which to familiarise themselves with the arena and ensure their aircraft is performing correctly.*

*○ During the warm up period no music will be played*

*○ At the end of the warmup period the pilot will be allowed time to change battery and place their aircraft on the start position.*

*○ Each pilot will have 3 minutes in which to perform the freestyle display on which they will be judged*

*○ The 3-minute timer will begin with the sound of a horn.*

*○ The pilot will be warned when they have 30 seconds of their display time remaining*

*○ At the end of the 3-minute time a warning will be given and the music stopped. The Pilot must return and land at the start position as soon as possible.*

*3.2. Judging (general)*

○ *There will be 3 judges scoring the pilots display independently of each other.*

*○ Judges will not confer except on matters of safety infringements.*

*○ An official spotter will stand with the pilot during their flights. The role of the spotter is to inform the pilot if they leave the designated arena boundary, to give the pilot their 30 second warning and is authorised to cut power to the aircraft in extreme cases where public safety is concerned.*

*○ A official time keeper will be responsible for starting and ending the 1 minute warm up period and the 3-minute display period. The time keeper will also be responsible for playing the Pilots chosen music track through the P.A. system and ensuring the music volume balance is correct.*

*3.2. Judging (display)*

*○ points scaling is as follows:*

*Each section of the display is judged and points awarded with maximum points ranging between 1.0 and 3.0 points. The maximum score possible for a display is 10.0*

*○ During the official 3-minute display the pilot will be judged and scored on the following criteria:*

*i) Take off and engagement*

*Does the pilot take off smoothly and go straight into their display, (points deducted for hesitation in performing first trick or manoeuvre)*

*Points: 0.0 – 1.0*

*ii) Technical Difficulty*

*(Did the pilot chain unique/technical tricks without repetition?) Longer chains of technical tricks will be awarded a higher score.*

*Points: 0.0 – 3.0*

*iii) Synergy*

*Does the pilots display work in synergy with their chosen music track? Does the overall mood of the music track reflect the style of the pilots display?*

*Points: 0.0 – 2.0*

*iv) Piloting Authority*

*Did the pilot appear in control of their craft throughout their entire routine?*

*Points: 0.0 – 1.0*

*v) Overall Display*

*Does the pilots display have the “wow” factor, has the display been balanced, exciting and entertaining to the spectators?*

*Points: 0.0 – 3.0*

*At the end of the display, the average of the Judges combined scores will become the pre-penalty score for the competing pilot.*

*3.4. Infringements and penalties*

*○ Each judge will make a tally of the number of crashes a pilot suffers during their 3-minute display, at the end of the display, the average of the judge’s total crash tally will be taken and 0.3 points will be deducted from the pilot’s pre-penalty score for each crash.*

*○ crashes are defined as an unintentional landing or striking of an obstacle which results in an unintentional landing. Rough landings will not be judged as a crash. It will be at the judge’s discretion as to what is or is not a crash.*

*○ If a pilot leaves the arena boundary but remains within the 30-meter safety line they will receive an official warning and 1.0 point will be deducted from their Pre-penalty score.*

*○ 2 infringements of the arena boundary will result is disqualification.*

*○ If a pilot leaves the arena boundary and strays beyond the 30-meter safety line they will be immediately disqualified from the competition.*

*3.5. Final score*

*The pilots final score is their pre-penalty score minus any deductions for infringements.*

*3.6. Crash recovery*

*If a pilot crashes and is unable to recover, they are permitted to enter the freestyle arena and reset their aircraft. The aircraft must be reset on the starting position. The pilot must return to the safety of the Pilot/Judging area before recommencing their display.*

*Any recovery must be within the 3-minute time period which will continue to count down during recovery.*

*The changing of aircraft is forbidden during the 3-minute display.*

*The changing of batteries, replacement of props and other repairs are permitted but the 3-minute timer will continue to count down during this time.*