

DRILL AND SKILL WITH DRONES

GENERAL DESCRIPTION

This regulation is an evolution subject to continuous improvement that takes as a reference regulations presented in previous events and competitions held worldwide. Days prior to the competition, participants must attend a meeting in which the competition modality for each scenario will be explained in detail, as well as the details of the circuit, how the phases will be defined from the beginning to the final phase.

The objectives of the drone skill competition are:

- a. To demonstrate skill and drill in handling the equipment.
- b. To successfully perform the tasks described in this regulation.

TECHNICAL CHARACTERISTICS OF THE DRONE

Two different competition scenarios will be held:

1. Drone obstacle race. For this activity it is required that the drone:
 - a. Be found in optimal condition, both at the level of its physical structure and control and the ability to be operated by the participants.
 - b. That its horizontal length does not exceed 75 cm.
 - c. That it is not so light in such a way that in the event of wind, at the time of the competition, it may not be affected to a greater degree.
2. Proof of skills and abilities to pilot drones. It is suggested that the structure of the drone be made of resistant material due to exposure to heights within the framework of handling skills and ability of the drone.
 - a. Commercial drones or prototypes, which have been manufactured, will be accepted.

The prototype must not have devices that could interfere with the control of the rival drone. These devices include: laser tools, electronic PEMs, signal jammers at 2 and 5 Ghz, high power spotlight, strobe lights and any type of devices that may cause interference.

CHARACTERISTICS OF COMPETITION AREA

1. The start and finish line will be marked by means of a runway de 85 centimeters in diameter.
2. There will be no regulations prohibiting the use of cameras and video equipment, used by the public, other competitors or the media at any time during the competition.
3. There will be no regulations to ensure that the environment or facilities do not interfere with Wireless control.
4. In the event of suspected device outside the competition that is causing interference, it will be the task of the qualifying jury to inform the organizers so that they turn it off or move it away.

HOMOLOGATION

1. It will be verified that the prototype has the order to assemble and dismantle motors available.
2. Prototypes may have two-blade or three-blade type propellers. They will not be accepted with four (4) blades.
3. Emergency motor dismantling will be checked.
4. If fpv devices are used in the prototype, channels 1 to 8, corresponding to F and L bands must be used, Table 1, if this can not be configured with the corresponding frequency, the prototype will be disqualified.
5. The prototype must have two driving modes, safe mode where it can be assisted by gps o internal sensors (Assisted, Horizon) and acro mode where the device has no reading from any external sensor (Acro).

Table 1: Frequency bands and channels.

BAND	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
BAND-A	5865	5845	5825	5805	5785	5765	5745	5725
BAND-B	5733	5752	5771	5790	5809	5828	5847	5866
BAND-E	5705	5685	5665	5645	5885	5905	5925	5945
BAND-F	5740	5760	5780	5800	5820	5840	5860	5880
BAND-R	6558	5695	5732	5769	5806	5843	5880	5917
BAND-U	5325	5348	5366	5384	5402	5420	5438	5456
BAND-O	5474	5492	5510	5528	5546	5564	5582	5600
BAND-L	5333	5373	5413	5453	5493	5533	5573	5613
BAND-H	5653	5693	5733	5773	5813	5853	5893	5933

DEVELOPMENT OF THE COMPETITION

There will be three phases of the competition:

1. Phase 1 (skill)
2. Phase 2 (drill)
3. Final phase

In the preamble to the competition, the qualifying jury will observe that the drones comply with the specifications established in the homologation section. In addition, the functionality of this will be observed. The following aspects constitute grounds for disqualification in the preamble to the competition.

1. Non-compliance with the technical specifications.
2. Failure to appear in the preamble of the competition as dictated by the general regulations.
3. The lack of functionality of the drone.
4. The presence of stickers, figures or writings that violate morality.

Only the team captain may approach the competition scenario carrying the drone and he will be the one who commands it in the event that it works by radio control.

Penalty and elimination of the drone will be considered in the following aspects:

1. If any participant verbally, gesturally, or physically insults the opponent, jury, members of the organization or any spectator.

2. If any participant intervenes on the track to support his drone or interfere with the development of his opponent. Team representatives may take their respective drones only with the authorization of the judges.
3. Any drone that possesses devices that reproduce sounds with offensive words, produce some type of inappropriate action, or contain images or words of the same nature on its structure.
4. Pleading aggressively or offensively to a judge.
5. All drones will have the obligation to demonstrate the necessary capabilities to compete. In the preamble to the competition, the judges will inspect all the drones to verify that they meet the following specifications:
 - a. Optimal flight capacity
 - b. Skill support capacity (that its structure allows maneuvers)
6. At the beginning of each competition the drone will be placed in the starting area behind the starting line.
7. When the referee gives the order, the team representative will start the drone wirelessly.
8. A drone is considered to have crossed the finish line when it has reached the landing zone.

DETERMINING THE WINNER OF THE COMPETITION

1. The participating drone that crosses the finish line in the shortest time is considered the winner of the round.
2. According to the elimination keys established by the qualifying jury, the competitors get eliminated when the two best drones get to the final, which will be determined in the same way in what corresponds to the first scenario.
3. Once the competitions are over, the qualifying jury will publish among those present, the name of the winning team and the institution they represent, in the same way, the same data will be published for the second and third place of the competition.

REQUEST TO STOP THE GAME

1. A player may request that the game be stopped when his robot has had an accident that prevents the game from continuing, only once per combat, a maximum of twice during the competition.
2. The break will last five (5) minutes.
3. The final decision on granting or not granting the interruption will always be up to the judge.

IMPOSSIBILITY TO CONTINUE THE GAME

1. When the drone cannot continue because the robot has suffered an accident.
2. Players may present their objections to the judge or the coordinator of the competition before the end of the game, if they have any doubts about compliance with the rules.
3. The judges have the agency to stop the competition at any time and for any reason. The game will restart when the judges command it.

EXPULSION FROM THE COMPETITION

1. The judges reserve the right to remove a team that deserves such penalty from the competition.
2. The expelled team has the right to appeal to the competition coordinator who will issue a final and unappealable sentence.
3. At any time and in any place (area for competitors) any action that goes against the competition, the organization, or against other participants may lead to immediate expulsion.
4. In case of doubt, the judges have the final say.

JUDGES

- I. The role of the judge is important in the competition for he will be in charge of complying with the rules and regulations established by the organizing committee.

- II. The judges for this competition will be appointed by the organizing committee. Participants may present their objections to the judge in charge of the category prior to the end of the competition.
- III. In case of doubts at the application of the standards, the judge always has the final say.
- IV. In the event of a dispute over the judge or judges' decision, a written disagreement may be submitted to the Council of Judges. Once the competition is over, the arguments presented will be evaluated and a decision will be made in this regard. This decision is unappealable.