

**OSU Aircraft Design
OSU/UML/NASA OSGC
UAFS Airshow and Flight Competition
Saturday April 30 (Rain Day, Saturday, May 14)**

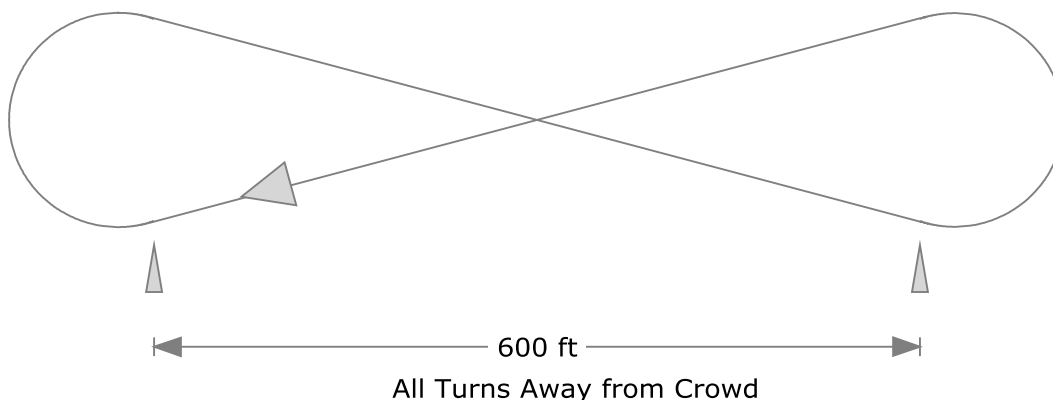
Rules for "Speedfest" Competition

Aircraft Requirements

- Electric Propulsion only (with the exception of a launch system)
- 11.1 v nominal voltage propulsion battery pack of any type or capacity (eg. 3S Lipo, 9-cell NiMH)
- 40 Amp McMaster-Carr fast-acting blade-style 7460K39 fuse in series with propulsion pack which also must serve as an external arm/disarm link. All propulsion current must pass through this single fuse. It must be accessible from the outside of the aircraft.
- Aircraft must take off without requiring a human to touch the airplane after the propulsion system is armed with the fuse. Launch point must be located at a safe point in between the two pylons and in a safe direction.
- Propeller and batteries may be changed between missions. No other part of the aircraft configuration may be changed.
- A team may compete with more than one airplane as long as they are identical in geometry and weight minus batteries and prop.

Mission 1: Pylon Race

- Aircraft must fly 10 laps in a figure 8 pattern. All turns away from crowd.
- Time starts at first pylon crossing, and ends at same pylon, 10 laps later. Although turns may commence before reaching a pylon, a lap is not considered complete until both pylon judges signal that the pylons have been crossed.
- Mission₁ score = $1200 * 10 / \text{time}$



Mission 2: Top Speed

- The top speed of the aircraft will be measured by timing across the 600 ft. course.
- Before landing, the aircraft must make two full-speed passes. One in each direction.
- Speed must be gained through thrust alone upon entering the course. Any significant diving during either speed run will result in disqualification of the run.
- Mission₂ score = Average top speed of the two runs

Overall Contest Score

Winner of the contest will be determined by the following score:

$$SCORE = 50 \frac{Mission_1 \text{ score}}{Best \text{ Mission } 1 \text{ score}} + 50 \frac{Mission_2 \text{ score}}{Best \text{ Mission } 2 \text{ score}}$$