

UKRoC 2022 Mission

1. ROCKET REQUIREMENTS

Rockets must not exceed 650 grams gross weight at liftoff. The overall length of the rocket must be no less than 650 millimeters (25.6 inches) as measured from the lowest to the highest points of the airframe structure (including fins) in launch configuration. The rocket external structure must be made up of at least two tubes, each no less than 150mm long, that must be of different diameters. The rocket motor and the eggs must be in different-diameter tubes. Putting a wrap on a tube is not considered to change its diameter for compliance with this requirement. All portions of the rocket must remain connected or tethered together from takeoff until landing and the rocket must recover by parachute. Rockets flown at the Finals will be required to have a paint or other decorative coating applied to any wood, paper, or fiber exterior surface of the rocket and will be assessed a 5-point flight score penalty on their first flight at the Finals if they do not. Rockets may not be commercially-made kits designed to carry egg payloads with the only modification being the addition of an altimeter compartment. They must have only one stage.

2. PAYLOAD

Rockets must contain and completely enclose two raw hen's egg of 55 to 61 grams weight and a diameter of 45 millimeters or less, 56 to 59mm long, flown "sideways"(ie with their long axis perpendicular to the long axis of the rocket's body)They must be returned from the flight without any cracks or other external damage. The eggs will be issued to the teams by event officials during the Regional Qualifying Events and National Finals, but teams must provide their own eggs for their test flights.

3. DURATION SCORING

The flight duration goal is a range of 41 to 44 seconds. Flights with duration in the range of 41 to 44 seconds get a perfect duration score of zero. Duration scores for flights with duration below 41 seconds will be computed by taking the absolute difference between 41 seconds and the measured average flight duration to the nearest 1/100 second and multiplying this by 4. Duration scores for flights with durations above 44 seconds will be computed by taking the absolute difference between 44 seconds and the measured average flight duration to the nearest 1/100 second and multiplying this by 4. These duration scores are always a positive number or zero.

4. ALTITUDE SCORING

The altitude performance goal for qualification flights is 835 feet The altitude score will be the absolute difference in feet between the altitude performance goal in feet and the altimeter-reported actual flight altitude in feet (always a positive number or zero).

5. ROCKET MOTORS

Rockets must be powered only by commercially made model rocket motors of "F" or lower power class that are listed on the UKRoC Approved Motor List posted on the UKRoC website. Any number of motors may be used, but the motors used must not contain a combined total of more than 80 Newton-seconds of total impulse based on the total impulse ratings in the UKRoC list. Motors must be retained in the rocket during flight and at ejection by a positive mechanical means (clip, hook, screw-on cap, etc.) and not retained simply by friction fit in the motor mounting tube. Rockets must not contain any pyrotechnic charges except those provided as part of the basic commercially made rocket motor used for the flight, and these must be used only in the manner prescribed in the instructions for that motor.