2023 FAR-51025 Rocket Competition specification sheet:

Please complete and bring this to FAR **with signed FAR User Agreements and Fees**

School name _____ # of students attending event ____

Team lead(s), email, and phone number(s) _____

_____

Competition class (please circle) 5,000' 10,000' 25,000' New Unlimited by approval

Motor type (please circle) solid liquid hybrid commercial experimental

Motor class (K-O) _____ total impulse (> 12800 & < 40,960 N-sec) _____

Total liftoff weight _____ diameter _____ length of rocket _____

Color of rocket (*a light color is recommended because of heat*) _____

Color of drogue chute _____ color of main chute _____

Type of launch rail (please circle) 1010 1515 or adjustable tower BYO

Type of altimeter/flight computers used _____

_____

NOTE: 2 required, competition scoring to be made with the mandatory COTS altimeter

Payload option _____ weight of payload _____

Tracking type (GPS, RF beacon or other by approval) _____

Tracking frequency _____

Video transmission frequency_____.

Contact information (name, phone number email address). **Also place on/in the rocket**.

The facility will officially open at 5 pm Friday…camping on site is permitted. Please be advised winds generally pick up speed after 12 noon, Weather permitting, launching begins at 8 am. Rockets need to be inspected before launching. Attendees are required to be in protective concrete reinforced overhead protection viewing trenches for all experimental motors. Minimum of two experimental rockets need to be on launch pads before launching to save time going to viewing trenches. Please use batteries that will last ***at least one hour*** or more on launch pad.

Rockets must be recovered and returned at event to be scored for judging.

FAR 51025 Scoring This will aid teams in how the scoring works for the competition.

Altitude: a point is awarded for every foot of altitude reached up to the target of the division entered. A point is deducted for every foot of altitude over the division target. Example, a rocket entered in the 10,000' division that reaches 9,500' would receive 9500 points and a rocket that reaches 10,500' would receive 9,500 points to their score. New Unlimited, team picks target altitude (different scoring metrix)

Motor type: Acknowledging the increased difficulty of experimental motor design, construction, and testing, additional points are added for their use in the rocket Changes for 2023: *experimenta*l solid motors an additional (10% of altitude reached) points added to the score, *experimental* hybrids an additional (20% of altitude reached) points and *experimental* liquids (30% of altitude reached) points. Commercial hybrids or liquids will receive 500 points.

2-stage rocket: An additional 1,000 points are given for teams competing in the 25,000' division that does so with a 2-stage rocket.

Water ballast nose cone: Many people use heavy materials for ballast to stabilize rocket flight. An additional 1,000 points are given to any team demonstrating the successful use of a nose cone containing 500 mL of water for ballast and safely releasing the water into the air at or near apogee.

Build video or photos: 500 points will be added to the team score for a 2 minute video of the team's build or 25 photographs and submitted Change for 2023: one week prior to arrival at the FAR facility.

Payload options, changes for 2023, points award for successful mission completion
1000-points: Remotely Radio-Controlled Rover. Changes for 2023: Rocket must deploy a rover that leaves the rocket and travels a minimum of 10-feet after touchdown with live video on the ground from the rover to the receiving station till. Rover can be deployed separately from the rocket in the air on a parachute or after landing.
3000-points: Autonomous rover: A rover that returns autonomously to FAR designated area with live video. New for 2023: 2,000 points if memory card used instead of live video.
1000-points: Remote Sensing. Changes for 2023: After landing, a remote video camera will record the landing surroundings in a 360-degree horizontal panorama for transmission to launch control.
1000-points: Reconnaissance. Glider deployment below 400' on rocket descent with live video transmission. New for 2023: 1,000 points for memory card video instead of live video if glider returns to FAR designated landing area for memory card retrieval.
2000-points: Reconnaissance Return. Release of drone below 400' altitude or after landing with live video during drone return to a FAR designated location by autonomous or remote control. New for 2023: 1,000 points if video memory card used instead of live video.
500-points: Remote Sensing. Rocket must transmit live video from liftoff to touch down. Live video must be seen by judges and or recorded by the ground launch area receiving station for later viewing.

500 additional points New changes for 2023: for a user defined scientific payload that is contained in a 0.5 to 3 U CubeSat, Pocket Cube (5cm*3) or CanSat form factor. Prior approval required.

New for 2023: points for on board video source recorded to a memory card during the flight must be received by judges or downloaded the day of the flight to rocketrycontest@gmail.com

Live video must be witnessed by a judge and recorded at the ground launch area receiving station. Ground station recording of live video can be done on memory card or cell phone video of screen.

Points are awarded for successful payload mission completion.