Textron Aviation
Raytheon Missile Systems
AIAA Foundation

2018 CONTEST PRE-TECH & FLIGHT CERTIFICATION

University: _____

Team: _____

Inspector (Name, Signature & Affiliation): _____

Date: _____

1. Systems

Pass	Fail	Verify that the receiver is powered by a separate NiCad or NiMH battery with an external switch
Pass	Fail	Verify the motor/servos/wheels/landing gear are secured w/ safety wire, Loctite, or nylock nuts
Pass	Fail	Verify all control rods are of the proper gauge/strength, and are securely attached to control horns
Pass	Fail	Verify all control horns are properly secured to the control surfaces
Pass	Fail	Verify control surfaces and wing-surfaces are of adequate flutter & aero-elastic resistance

Use this space to write up any non-compliance:

2. Passengers and Payload Blocks

Pass	Fail	Verify each passenger has its own, individual “seat” and an individual restraint system
Pass	Fail	Verify seats are on one level and on a single, planar surface
Pass	Fail	Verify passenger arrangement/spacing and aisle width are in compliance with the rules
Pass	Fail	Verify payload blocks are rectangular cuboid with L + W + H is at least 9 inches, no side less than 2”, no more than 8 ounces, and are all the same
Pass	Fail	Verify payload bay is separate from the passengers and either behind and/or below the passengers

Use this space to write up any non-compliance:

3. Propulsion System

Pass	Fail	Verify propeller and hub/pitch mechanism commercial availability and verify their mounting integrity
Pass	Fail	Verify all propulsion is provided by an unmodified commercially available electric motor
Pass	Fail	Verify that a fuse or arming plug is connected to all positive propulsion battery terminals
Pass	Fail	Verify the fuse or arming plug is located ahead of a pusher propeller or behind a tractor propeller and is externally mounted and accessible without removal or opening of any cover(s)
Pass	Fail	Verify no bare wires are visible, and all connections are shrink-wrapped, or fully-insulated

Use this space to write up any non-compliance:

4. Propulsion Battery (check all flight packs to be used)

Pass	Fail	Verify all battery connectors are fully insulated
Pass	Fail	Verify commercially available and visible NiCad or NiMH batteries
Pass	Fail	Verify there is transparent shrink wrap over all contact points & solder joints

Use this space to write up any non-compliance:

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5. Tip Test

Configure battery equipped aircraft with heaviest payload

Pass / Fail	Verify aircraft in this configuration is **< 55lbs**
Pass / Fail	Have students lift the aircraft configured in the maximum weight condition from the wingtips, at the CG without structural damage
Pass / Fail	Verify aircraft has a CG Mark for all possible mission configurations. (and that it is correct & reasonable)

Use this space to write up any non-compliance:

6. Range check and failsafe validation

☐ 2.4GHz	☐ 72Mhz	72MHz Channel Assigned:	

One member must hold the a/c while the pilot walks away a distance equal to the manufacturers recommended range with either the antenna down for 72 MHz or at reduced RF output power for 2.4 GHz radios:

Pass / Fail	Start with fuse or arming plug pulled, cycle throttle; verify no engine/prop movement/propulsion and verify all controls work properly		
Pass / Fail	Verify the area is clear and install the fuse. Apply 1/4 power, have the pilot check the following responses:		
☐ Right Roll	☐ Left Roll	☐ Right Yaw	☐ Left Yaw
☐ Nose Up	☐ Nose Down	☐ Throttle cutoff	☐ Throttle back to ¼

Verify Lost-Link works properly by turning off the Transmitter(s):

☐ Throttle closed	☐ Full up elevator	☐ Full right rudder	☐ Full right aileron	☐ Full flaps down

Use this space to write up any non-compliance:

Flight Certification

Inspector (Name, Signature & Affiliation): _____

Date: _____

The following items must be completed successfully to begin on-site tech inspection at the contest:

1. Technical Inspection Follow-up

Pass / Fail Verify correction of non-compliant Pre-Tech items

2. Successful flight validation

Pass / Fail Verify competition aircraft has flown a complete successful flight including a minimum of:

- Ground take-off meeting all requirements outlined in the contest rules.
- Flight pattern containing at least one left and one right 360 degree turn while maintaining altitude
- Landing within a designated area with no damage to aircraft