CHECK LIST

1)The design shall be capable of vertical takeoff and landing:

Designed for this purpose

2) The aircraft shall include at least one fixed wing for forward flight:

Included

3) Maximum takeoff mass (MTOM) shall be below 25 kg: Vehicle weight when fully loaded < 25kg.

Designed for this purpose

4) The maximum wing span shall be below 5 meters and the maximum aircraft length shall be below 4 meters:

- wing span: 3,2 meters

- aircraft length: 2 meters

5) The aircraft shall be modular for the ease of transportation. The maximum length of the individual parts shall not be longer than 2 meters.

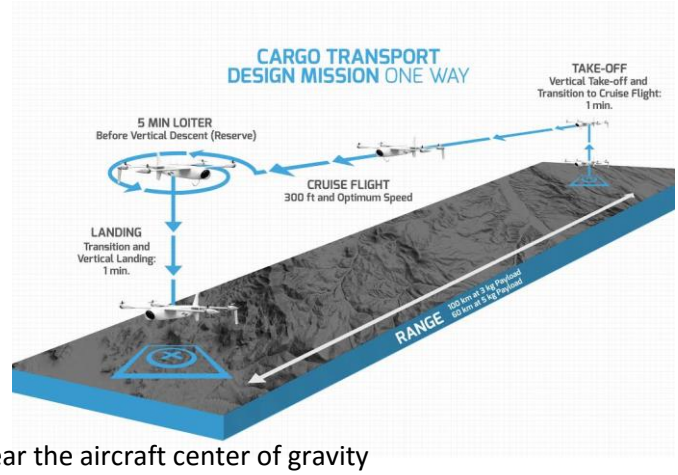
-2 meters

6) Payload range requirement:

5 kg payload: > 60 km range

3 kg payload: > 100 km range

Designed for this purpose



7) Payload range requirement:

Designed for this purpose

8) Payload bay:

-A single payload bay shall be located near the aircraft center of gravity

-Minimum payload bay dimension shall be 450 x 350 x 200 mm

-The payload bay shall be located and accessible from the lower side of the aircraft and must be interchangeable with payload bay of same size and same interface. (Payload concept shall be modular to fulfill applications different from the cargo use case. e.g. sensor payload)

Additionally , a pyrotechnic device would be able to release the load during flight in emenrgency case.

9) The cruise speed in fixed wing mode shall be at least 80 km/h (and Max speed shall not exceed 194 km/h)

Designed for this purpose

10) The aircraft shall use at least 4 direct drive lift rotors/propeller but not more than 10 direct drive lift rotors/propellers

-4 lift motors

11) For energy storage off the shelf rechargeable batteries shall be used.

2 packs batteries accessible from the cargo compartment (Quick released and sealed concept)

12) Have reserved weight, space and power for the items outlined in the Ignition Kit and in the guidelines (Outlined in 3D and 2D models in the ignition kit)

All ignition kit is included in this concept except XL96 Skycat Parachute System. Instead:

Opt 1: Considering the hybrid drone Concept is propulsion and flight control redundant (fail safe), a RAT (Ram Air Turbine) with and 0.5 kg estimated weight would cover a possible power failure (enought to control the fly)

Opt 2: Replace XL96 Skycat by a lighter pyro GBS 10/250 parachute system

(Antennas not represented to simplify the model)

12) Landing Gear:

Retractable Landing gear with flexible legs is included . Fixed landing gear could be another lighter option (more drag)

13) structural concept

CRFP fuselage (Aramid Honeycomb), foam overlaid with carbon fiber wings (with CRFP FS and RS until Y axis_motor line), Carbon Fiber bending rod (motors attachment) and CFRP tensión rod attached to fuselage hard points (to take the My forces induced over the wing by the engines). This concepts will be show by detailed drawings