Target Catalog

## Target Summary

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| **Function**: | **Metric:** | **Target:** | **Validation Method:** | **Validation Tools:** |
| **Accelerate** |
| Generate Thrust | Take-offDistance | Less than 100 ft.Time Limit: 120 sec.  | Test Flight | Measuring tape to find take-off distance of each test flight  |
|  Thrust Force | Greater than 10 pounds | Thrust Test | Custom built thrust test stand |
| Maneuver Down Runway | Turn Radius | Less than 5 ft  | Physical Measurement | Measuring tape |
| **Enable Lift** |
| Provides Lift | Planform Area | Greater than 6 ft2 | CAD | Creo |
| Wingspan | Less than 120 in. | CAD | Creo |
| Max Weight | 15 Pounds | Physical Measurement | Scale |
| Overcoming Drag | Drag Coefficient | Less than 0.15 for the aircraft | Computational Fluid Dynamics | Ansys |
| **Carry Payload** |
| Load/Unload Cargo | Time to Unload | Less than 1 minute | Timing | Stopwatch and/or video recording |
| **Flight Controls**  |
| Motor – Provide Thrust  | Thrust Curve | Maximum thrust within 4 seconds | Thrust Test | Custom built thrust test stand combined with video footage for timing |
| Rudder – Control Yaw  | Angle of deflection | ±25° | Physical Measurement | Protractor |
| Elevator – Control Pitch  | Angle of deflection | ±25° | Physical Measurement | Protractor |
| Aileron – Control Roll  | Angle of deflection | ±25° | Physical Measurement | Protractor |
| Longitudinal Stability | Static Margin | Greater than %, less than 15% | Manual Computation | MATLAB, Creo |
| Resist Effects of Stress  | Airspeed at maximum deflection | 50ft/s | Experimental testing | Moving test rig with manometer |