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DESIGN REPORT

Input Parameters

- Payload Weight : 0.1 kg
- Endurance : 120 minutes
- Cruise Altitude : 300.0 m
- Cruise Speed : 15.0 m/s
- Wing Loading : 3 kg/m2
- Aspect Ratio : 5
- Taper Ratio : 0.5
- Fuselage Width Ratio : 0.08
- LE Sweep Angle : 30 deg
- Twist Angle : -2 deg
- Root Airfoil : hs522
- Tip Airfoil : hs522

Calculated Parameters

- MTOW/Payload Ratio : 5.9890
- MTOW : 0.5989 kg
- Wing Area : 0.1996 m2
- Full Span : 0.9991 m
- Fuselage Width : 0.0799 m
- Wing-Only Semispan : 0.4596 m
- Root Chord : 0.2595 m
- Tip Chord : 0.1298 m
- MAC : 0.2018 m
- MAC LE X-Position : 0.1179 m

Flight Conditions

- Air Density : 1.1911 kg/m3
- Dynamic Viscosity : 1.7797e-05 Ns/m2
- Reynolds Number : 202622
- Mach Number : 0.0442
- Lift Coefficient : 0.2196

Q3D Analysis Results

- Angle of Attack : 2.2212 deg
- Drag Coefficient : 0.0136

Propulsion System Specifications

- Power-to-Weight Ratio : 220 W/kg
- Minimum Motor Power : 131.7571 W