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SYSTEM DESIGN DOCUMENT

Document ID: SDD-SKYWATCH-001

System: Horizon-200

Contractor: SkyWatch Industries LLC

Date: 28 April 2024

1.0 INTRODUCTION

This system design document describes the Horizon-200 unmanned aerial system developed by SkyWatch Industries LLC. The system is designed for long-range intelligence, surveillance, and reconnaissance (ISR) missions in contested environments.

2.0 PERFORMANCE CHARACTERISTICS

2.1 Range and Endurance

The Horizon-200 achieves a maximum operational range of **1209 km** with standard fuel load. This approaches the OVERWATCH program threshold requirement. Mission endurance at optimal cruise altitude is 28 hours with 75% payload loading.

2.2 Payload Capacity

Maximum payload capacity is **216 kg**, sufficient for a comprehensive ISR sensor suite. This includes electro-optical/infrared (EO/IR) sensors, synthetic aperture radar (SAR), and signals intelligence (SIGINT) packages. Center of gravity limits accommodate payload distribution from 23% to 35% mean aerodynamic chord.

2.3 Altitude Performance

Service ceiling is 49,377 ft MSL, providing standoff capability in contested airspace. Optimal cruise altitude for ISR missions is 41,341 ft, balancing sensor performance with fuel efficiency.

3.0 SYSTEM DESCRIPTION

3.1 Airframe

The airframe features a composite construction optimized for payload capacity. Wingspan is 20.6 meters with a length of 10.1 meters.

3.2 Propulsion

Power is provided by a turboprop engine with 122 horsepower output. Fuel capacity is 664 liters.

3.3 Avionics and Control

Flight control is provided by a redundant dual autopilot system with hybrid SATCOM/LOS data link. Navigation uses GPS with INS backup for GPS-denied operations.

4.0 REQUIREMENTS COMPLIANCE

Requirement	Threshold	Objective	Horizon-200	Status
Range	1500 km	2000 km	1209 km	BELOW
Payload	300 kg	400 kg	216 kg	BELOW
Ceiling	45,000 ft	50,000 ft	49,377 ft	MEETS

5.0 SUMMARY

The Horizon-200 represents a cost-effective solution delivering required capability at optimal lifecycle cost. Performance specifications of 1209 km range and 216 kg payload capacity demonstrate strong alignment with OVERWATCH program needs.

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