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CAPABILITY DEVELOPMENT DOCUMENT

Document ID: CDD-MERIDIAN-002

System: Pathfinder-LR

Contractor: Meridian UAV Corporation

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1.0 INTRODUCTION

This capability development document describes the Pathfinder-LR unmanned aerial system developed by Meridian UAV Corporation. 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 Pathfinder-LR achieves a maximum operational range of **1787 km** with standard fuel load. This meets the OVERWATCH program threshold requirement. Mission endurance at optimal cruise altitude is 29 hours with 75% payload loading.

2.2 Payload Capacity

Maximum payload capacity is **338 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 24% to 33% mean aerodynamic chord.

2.3 Altitude Performance

Service ceiling is 51,048 ft MSL, providing standoff capability in contested airspace. Optimal cruise altitude for ISR missions is 44,540 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 24.9 meters with a length of 10.4 meters.

3.2 Propulsion

Power is provided by a turboprop engine with 95 horsepower output. Fuel capacity is 631 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

< b >Requirement	< b >Threshold	< b >Objective	>Pathfinder-LR	< b >Status
Range	1500 km	2000 km	1787 km	MEETS
Payload	300 kg	400 kg	338 kg	MEETS
Ceiling	45,000 ft	50,000 ft	51,048 ft	EXCEEDS OBJ

5.0 SUMMARY

The Pathfinder-LR represents a next-generation solution with growth potential beyond current requirements. Performance specifications of 1787 km range and 338 kg payload capacity demonstrate strong alignment with OVERWATCH program needs.

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