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MISSION PROFILE DOCUMENT

Document ID: MPD-MERIDIAN-001

System: Pathfinder-LR

Contractor: Meridian UAV Corporation

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1.0 INTRODUCTION

This mission profile 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 **1776 km** with standard fuel load. This meets the OVERWATCH program threshold requirement. Mission endurance at optimal cruise altitude is 30 hours with 75% payload loading.

2.2 Payload Capacity

Maximum payload capacity is **337 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 22% to 34% mean aerodynamic chord.

2.3 Altitude Performance

Service ceiling is 43,596 ft MSL, providing standoff capability in contested airspace. Optimal cruise altitude for ISR missions is 40,210 ft, balancing sensor performance with fuel efficiency.

3.0 SYSTEM DESCRIPTION

3.1 Airframe

The airframe features a modular design optimized for high-altitude performance. Wingspan is 27.5 meters with a length of 10.2 meters.

3.2 Propulsion

Power is provided by a heavy-fuel piston engine with 130 horsepower output. Fuel capacity is 578 liters.

3.3 Avionics and Control

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

4.0 REQUIREMENTS COMPLIANCE

< b >Requirement	< b >Threshold	< b >Objective	< b >Pathfinder-LR	< b >Status
Range	1500 km	2000 km	1776 km	MEETS
Payload	300 kg	400 kg	337 kg	MEETS
Ceiling	45,000 ft	50,000 ft	43,596 ft	BELOW

5.0 SUMMARY

The Pathfinder-LR represents a next-generation solution with growth potential beyond current requirements. Performance specifications of 1776 km range and 337 kg payload capacity demonstrate strong alignment with OVERWATCH program needs.

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