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# PERFORMANCE SPECIFICATION

**Document ID:** PS-MERIDIAN-002

**System:** Pathfinder-LR

**Contractor:** Meridian UAV Corporation

**Date:** 11 February 2024

## 1.0 INTRODUCTION

This performance specification 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 **1632 km** with standard fuel load. This meets the OVERWATCH program threshold requirement. Mission endurance at optimal cruise altitude is 20 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 22% to 35% mean aerodynamic chord.

### ***2.3 Altitude Performance***

Service ceiling is 47,322 ft MSL, providing standoff capability in contested airspace. Optimal cruise altitude for ISR missions is 44,765 ft, balancing sensor performance with fuel efficiency.

## 3.0 SYSTEM DESCRIPTION

### ***3.1 Airframe***

The airframe features a composite construction optimized for endurance. Wingspan is 26.0 meters with a length of 10.1 meters.

### **3.2 Propulsion**

Power is provided by a heavy-fuel piston engine with 84 horsepower output. Fuel capacity is 687 liters.

### **3.3 Avionics and Control**

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

## **4.0 REQUIREMENTS COMPLIANCE**

<b>&lt;b&gt;Requirement&lt;/b&gt;</b>	<b>&lt;b&gt;Threshold&lt;/b&gt;</b>	<b>&lt;b&gt;Objective&lt;/b&gt;</b>	<b>&gt;Pathfinder-LR&lt;/b&gt;</b>	<b>&lt;b&gt;Status&lt;/b&gt;</b>
Range	1500 km	2000 km	1632 km	MEETS
Payload	300 kg	400 kg	338 kg	MEETS
Ceiling	45,000 ft	50,000 ft	47,322 ft	MEETS

## **5.0 SUMMARY**

The Pathfinder-LR represents a next-generation solution with growth potential beyond current requirements. Performance specifications of 1632 km range and 338 kg payload capacity demonstrate strong alignment with OVERWATCH program needs.

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