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# INTERFACE CONTROL DOCUMENT

**Document ID:** ICD-MERIDIAN-001

**System:** Pathfinder-LR

**Contractor:** Meridian UAV Corporation

**Date:** 13 July 2024

## 1.0 INTRODUCTION

This interface control 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 **1813 km** with standard fuel load. This meets the OVERWATCH program threshold requirement. Mission endurance at optimal cruise altitude is 38 hours with 75% payload loading.

### ***2.2 Payload Capacity***

Maximum payload capacity is **357 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 46,402 ft MSL, providing standoff capability in contested airspace. Optimal cruise altitude for ISR missions is 44,398 ft, balancing sensor performance with fuel efficiency.

## 3.0 SYSTEM DESCRIPTION

### ***3.1 Airframe***

The airframe features a composite construction optimized for high-altitude performance. Wingspan is 24.2 meters with a length of 8.3 meters.

### **3.2 Propulsion**

Power is provided by a turboprop engine with 126 horsepower output. Fuel capacity is 704 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>&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	1813 km	MEETS
Payload	300 kg	400 kg	357 kg	MEETS
Ceiling	45,000 ft	50,000 ft	46,402 ft	MEETS

## **5.0 SUMMARY**

The Pathfinder-LR represents a next-generation solution with growth potential beyond current requirements. Performance specifications of 1813 km range and 357 kg payload capacity demonstrate strong alignment with OVERWATCH program needs.

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