

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

Requirement	Threshold	Objective	Pathfinder-LR	Status
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.

UNCLASSIFIED // FOR OFFICIAL USE ONLY