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TECHNICAL MANUAL

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System: Raptor-MQ

Contractor: Falcon Defense Systems Inc.

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1.0 OVERVIEW

This technical manual describes the Raptor-MQ unmanned aerial system developed by Falcon Defense Systems Inc.. 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 Raptor-MQ achieves a maximum operational range of **1786 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 **356 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 34% mean aerodynamic chord.

2.3 Altitude Performance

Service ceiling is 42,319 ft MSL, providing standoff capability in contested airspace. Optimal cruise altitude for ISR missions is 40,935 ft, balancing sensor performance with fuel efficiency.

3.0 SYSTEM DESCRIPTION

3.1 Airframe

The airframe features a high-aspect-ratio wing optimized for payload capacity. Wingspan is 18.2 meters with a length of 8.1 meters.

3.2 Propulsion

Power is provided by a turbodiesel engine with 122 horsepower output. Fuel capacity is 502 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

Requirement	Threshold	Objective	Raptor-MQ	Status
Range	1500 km	2000 km	1786 km	MEETS
Payload	300 kg	400 kg	356 kg	MEETS
Ceiling	45,000 ft	50,000 ft	42,319 ft	BELOW

5.0 SUMMARY

The Raptor-MQ represents a proven, low-risk solution with extensive operational heritage. Performance specifications of 1786 km range and 356 kg payload capacity demonstrate strong alignment with OVERWATCH program needs.

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