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# WEIGHT AND BALANCE REPORT

**Document ID:** WBR-FALCON-001

**System:** Raptor-MQ

**Contractor:** Falcon Defense Systems Inc.

**Date:** 29 September 2025

## 1.0 INTRODUCTION

This weight and balance report 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 **1845 km** with standard fuel load. This meets the OVERWATCH program threshold requirement. Mission endurance at optimal cruise altitude is 24 hours with 75% payload loading.

### *2.2 Payload Capacity*

Maximum payload capacity is **360 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 25% to 33% mean aerodynamic chord.

### *2.3 Altitude Performance*

Service ceiling is 48,145 ft MSL, providing standoff capability in contested airspace. Optimal cruise altitude for ISR missions is 35,769 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 20.7 meters with a length of 10.6 meters.

### **3.2 Propulsion**

Power is provided by a turboprop engine with 82 horsepower output. Fuel capacity is 413 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>&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>&lt;b&gt;Raptor-MQ&lt;/b&gt;</b>	<b>&lt;b&gt;Status&lt;/b&gt;</b>
Range	1500 km	2000 km	1845 km	MEETS
Payload	300 kg	400 kg	360 kg	MEETS
Ceiling	45,000 ft	50,000 ft	48,145 ft	MEETS

## **5.0 SUMMARY**

The Raptor-MQ represents a proven, low-risk solution with extensive operational heritage. Performance specifications of 1845 km range and 360 kg payload capacity demonstrate strong alignment with OVERWATCH program needs.

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