

NNA15558605Q

Statement of Work: Mid-Performance Unmanned Aerial System (UAS) to Support UAS Traffic Management (UTM)

Objective: Many beneficial civilian applications of UAS have been proposed, from goods delivery and infrastructure surveillance, to search and rescue, and agricultural monitoring. As UAS operations require interactions with a mix of general aviation aircraft, helicopters and gliders, there is a strong need to safely accommodate all of these vehicles at lower altitudes. Currently, there is no established infrastructure to enable and safely manage the widespread use of low-altitude airspace and UAS operations, regardless of the type of UAS. A UAS traffic management (UTM) system for low-altitude airspace is needed, much like today's surface vehicles that operate within a system consisting of roads, lanes, stop signs, rules, and lights, regardless of whether the vehicle is automated or driven by a human.¹

NASA's near-term goal is the development and demonstration of the UTM to safely enable low-altitude airspace and UAS operations within five years. As a part of this effort, a series of flight tests are planned. UASs with different performance levels are needed in these tests to collect engineering data to support development of the UTM.

Basic description of the item to be purchased:

One mid-performance UAS. A UAS is the unmanned aircraft (UA) and all of the associated support equipment, control station, data links, telemetry, communications and navigation equipment, etc., necessary to operate the unmanned aircraft.² Performance for this SOW is determined by UA's maximum takeoff weight (MTOW), payload weight, speed, and airborne endurance specifications.

Specifications:

Multi-rotor vertical takeoff and landing (VTOL) UA with at least 6 electric rotors
Redundant command and control link
Watertight airframe with positive buoyancy (i.e. UA should be floating in water)
Parachute with ejecting deployment mechanism
MTOW heavier than 15lb
Minimum payload 3lb
Minimum endurance 35minute
Maximum speed larger than 24knot
Electronic power source
Mode S Transponder with ADS-B out

Date of required delivery: October 30, 2015

¹ From UTM FAQ sheet, <http://utm.arc.nasa.gov/docs/UTM-Fact-Sheet.pdf>

² From FAA's definition, <http://www.faa.gov/uas/faq/#qn1>