

<u>Propeller and Propeller Limits.</u>	(1) APC, Propeller Model LP3-15013W FAA Propeller Type Certificate: None Propeller Type: 3-blade, chopped fiberglass and resin, 15 x 13 fixed pitch pusher Diameter (Nominal): 15 inches (38 cm) Pre-flight Static rpm requirement: Engine must successfully achieve the I-MUSE checklist item: Engine Performance Checked	
	Propeller for the optional engine: APC, Propeller Model LP16014P – see NOTE 15	
<u>Electric Generator</u>	20 Volts, nominal 6.0 Amps, maximum 95 Watts, maximum	
<u>Backup Battery</u>	19.2 Volts, nominal 1100 mA Hrs.	
<u>Airspeed Limits</u>	V_{NE}	98 KTAS (181 km/hr)
	V_{NO}	85 KTAS (157 km/hr)
	V_A (Maneuvering Speed)	85 KTAS (157 km/hr)
	Landing Speed (Closing Speed) – minimum	25 KT (46 km/hr)
	Landing Speed (Closing Speed) – maximum	52 KT (96 km/hr)
<u>Center of Gravity (C.G.) Range</u>	Center of gravity from datum Minimum: -1.97 in (-50 mm) at any weight Center of gravity from datum Maximum: -2.76 in (-70 mm) at any weight Reference Datum Location: 8.07 in (205 mm) forward from the aft edge of the fuselage module	
<u>Empty Weight C.G. Range</u>	None	
<u>Datum</u>	Located on centerline of airplane at wing trailing edge intersection: positive in the x direction to the nose; positive in the y direction to the right wing; and positive in the z through belly of the aircraft. (Insitu ScanEagle Datum Reference Drawing, 15Jul2013)	
<u>Mean Aerodynamic Chord (MAC)</u>	9.5 in (241.3 mm) long with leading edge: x = -0.55 in (14.0 mm) from datum y = 27.8 in (706.7 mm) from datum.	
<u>Leveling Means</u>	When level—in the aircraft stand—and not moving, accelerometers should read: X-axis: 0.0 G+/-0.03 G Z-axis: -1.0 G+/-0.05 G	
<u>Maximum Weights</u>	Ramp	44 lb (19.96 kg)
	Takeoff	44 lb (19.96 kg)
	Landing Weight	44 lb (19.96 kg)
<u>Empty Weight</u>	29.5 lb (13.4 kg) Empty weight using optional engine and propeller – see NOTE 15	

Data UP-Link Frequencies 1.3 GHz, Commands for: aircraft control, sensor control, video control

Data DOWN-Link Frequencies 1.3 GHz, Report status on: aircraft, sensors, and video

Video Down-Link Frequency 2.4 GHz

NOTE: FCC license is required to utilize the above frequencies.

Computer Software I-MUSE Software Version 5.6.13
Computer software for optional engine – see NOTE 15

Minimum Crew (1) UAS pilot at the Ground Control Station
(2) Personnel for launch and recovery

Number of Seats (0) Not Applicable

Fuel Capacity Fuel System: 12.3 lb of fuel (5.6 kg)
Unusable Fuel: 0.2 lb of fuel (0.1 kg)
See NOTE 15 for fuel capacity when using optional engine

Fuel/Oil mixture ratio: 50:1 – by volume
See NOTE 15 for Fuel/Oil mixture ratio when using the optional engine

NOTE: Fuel capacity includes the oil mixed with the fuel

Oil Capacity Not Applicable

Max. Operating Altitude 2000 ft. AGL (610 M)

<u>Control Surface Movements</u>	Outboard Elevon	Up 30°	Down 30°
Deflections are +/- 2 degree	Inboard Elevon	Up 30°	Down 30°
	Rudder	Left 25°	Right 25°

Flight Endurance 18.5 Hrs.

Flight Limitations

1. Day Visual Flight Rules (VFR) in visual meteorological conditions (VMC)
2. Flight through visible moisture: PROHIBITED
3. Flight operations in icing conditions at assigned operational altitudes: PROHIBITED
4. Flight Pitch Attitude: +/- 45°
5. Flight Bank Angle: +/- 44°
6. Ambient Outside Air Temperature (OAT)
 - a. Maximum OAT: 120°F / 49°C
 - b. Minimum OAT at Altitude: -4°F / -20°C
7. Wind. See Note 5
8. Flight Operations. See Note 4
9. For this operation only one ScanEagle can be airborne at any given time
10. Over water operation: PERMITTED
11. Over land operation: PROHIBITED, except PERMITTED for:
 - a) Ingress/egress routes for access to over water operations to and from coastal launch and recovery sites;
 - b) Airspace defined in Arlington Certificate of Waiver and Authorization (COWA) 2014-AHQ-101

12. An authorization for the specific location of operation issued by the Administrator is required and must be available at the control station. AFM number FAA-01-AFM, dated July 16, 2013 or later FAA approved revision, and certificate of airworthiness (C of A) must be available at the control station (reference FAA Memorandum, "Certification of Unmanned Aircraft", from AAL-7 to ANM-100L, dated June 19, 2013). Additionally, any certificates of authorizations or waivers must be available at the control station.
13. Only for operation in the designated Arctic Area as defined by the FAA Modernization and Reform Act of 2012, Section 332(d)(1).
14. Operation with inoperative instruments and equipment: PROHIBITED

Serial Numbers Approved:

Air Vehicle:

11-1313, 11-1453, 11-1458, 11-1459

Ground Control Station (GCS):

TGCS274, GCS143

Certification Basis

Restricted Category Only

14 CFR part 21.25(a) (2) for the special purpose of aerial survey,

14 CFR part 36, amendment 29, Appendix G

Production Basis

None

Ground Control Station:

P/N 900-201124-001

P/N 900-201125-002

UAS Support Equipment:

Launcher: Insitu P/N 090-000200R00. See Note 6 and Note 10.

Skyhook: Insitu P/N 900-200402-005. See Note 6 and Note 10.

NOTES:

NOTE 1

Current weight and balance data, loading information, and a list of equipment included in the empty weight must be provided for each UAS at the time of original certification.

NOTE 2

Placards Required: None

NOTE 3

This UAS must be maintained in accordance with Unmanned Aerial Systems Maintenance Handbook, Version 2.0, dated September 2007, Document Number 026-010019, or later FAA accepted revision.

NOTE 4

UAS shall be operated under 14 CFR part 91, operating requirements, as mitigated. Operations shall be conducted in accordance with a waiver of flight regulations applicable to the operation, including but not limited to 14 CFR § 91.113, issued by the Administrator and specific to the intended operation, including geographical limitations.

NOTE 15

The following items and limits apply when using the optional engine. All items and limits must be used when the optional engine is installed.

Optional Engine:

Northwest UAV, HFE-EFI (Heavy Fuel Engine–Electronically Fuel Injected)

FAA Engine Type Certificate: None

Engine type: Normally-aspirated, electronically fuel injected, two-stroke, direct drive, air cooled, single cylinder engine.

Fuel: JP-5 (MIL-DTL-5624U), or JP-8 (MIL-DTL-83133H)

Oil: Bel Ray H1R 2-Cycle Oil

Fuel/Oil mixture ratio: 32:1 – by volume

Engine Limits:

Max Takeoff Power 3.35 HP at 7000 RPM

Max Continuous Power 3.35 HP at 7000 RPM

Max Cylinder Head Temperature (CHT) 170 °C

Min CHT for flight 110 °C

Propeller and Propeller Limits:

APC, Propeller Model LP16014P

FAA Propeller Type Certificate: None

Propeller Type: 2-blade, chopped fiberglass and resin, 16 x 14 fixed pitch pusher

Diameter (Nominal): 16 inches (40.64 cm)

Pre-flight Static rpm requirement: Engine must successfully achieve the I-MUSE checklist item: Engine Performance Checked

Computer Software: I-MUSE Software Version 5.9.05 or 5.10.08

Empty Weight: 31.6 lb (14.3 kg)

Fuel Capacity: Fuel system: 10.2 lb of fuel (4.6 kg)

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