

<u>Fuel-Oil Mix Capacity</u>	2.5 gallons	
<u>Engine Limits</u>	Max Takeoff Power	1.75 HP at 8500 RPM
	Max Continuous Power	1.75 HP at 8500 RPM
	Max Cylinder Head Temperature (CHT)	180 °C
	Min CHT for flight	50 °C
	Engine limits for optional engine – see NOTE 15	
<u>Propeller and Propeller Limits.</u>	(1) APC, Propeller Model LP315135 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		
<u>Data UP-Link Frequencies*</u>	a) For operations in the “Arctic Area”: 1.3 GHz, Commands for: aircraft control, sensor control, video control (See <u>Approved Operational Areas</u> Section above – Item a)		
	b) For operations in the “New Mexico Railroad Area”: 900 MHz, Commands for: aircraft control, sensor control, video control (See <u>Approved Operational Areas</u> Section above – Item b)		
<u>Data DOWN-Link Frequencies*</u>	a) For operations in the “Arctic Area”: 1.3 GHz, Report status on: aircraft, sensors, video control (See <u>Approved Operational Areas</u> Section above – Item a)		
	b) For operations in the “New Mexico Railroad Area”: 900 MHz, Report status on: aircraft, sensors, video control (See <u>Approved Operational Areas</u> Section above – Item b)		
<u>Video Down-Link Frequency*</u>	2.4 GHz		
	*NOTES: 1) FCC license is required to use the above data and video frequencies. 2) FCC Special Temporary Authorization 1108-EX-ST-2015 is required for operations in the “New Mexico Railroad Area” for data and video frequencies		
<u>Computer Software</u>	I-MUSE Software Version 5.6.13 (see NOTE 15 for optional engine)		
<u>Minimum Crew</u>	(1) UAS pilot at the Ground Control Station (2) Personnel for launch and recovery		
<u>Number of Seats</u>	(0) Not Applicable		
<u>Fuel Capacity</u>	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		
<u>Oil Capacity</u>	Not Applicable		
<u>Max. Operating Altitude</u>	a) For operations in the “Arctic Area”: 2000 ft. AGL (610 m). (See <u>Approved Operational Areas</u> Section above – Item a)		
	b) For operations in the “New Mexico Railroad Area”: 1199 ft. AGL (365 m). (See <u>Approved Operational Areas</u> Section above – Item b)		
<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°

<u>Flight Endurance</u>	18.5 Hrs.
<u>Flight Limitations</u>	<ol style="list-style-type: none"> 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: $\pm 45^\circ$ 5. Flight Bank Angle: $\pm 44^\circ$ 6. Ambient Outside Air Temperature (OAT) <ol style="list-style-type: none"> 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 each of the areas listed in <u>Approved Operational Areas</u> above, only one ScanEagle X200 can be airborne at any given time. 10. Over water operation: PERMITTED 11. Over land operation: <ol style="list-style-type: none"> a) In the "Arctic Area": PROHIBITED, except PERMITTED for: <ol style="list-style-type: none"> i) 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 c) In the "New Mexico Railroad Area": PERMITTED 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. DELETED 14. Operation with inoperative instruments and equipment: PROHIBITED
<u>Serial Numbers Approved:</u>	<p>Air Vehicle: 11-1313, 11-1453, 11-1458, 11-1459</p> <p>Ground Control Station (GCS): TGCS274, GCS143, TGCS306, TGCS307</p>
<u>Certification Basis</u>	<p>Restricted Category Only</p> <p>14 CFR part 21.25(a) (2) for the special purpose of aerial survey, 14 CFR part 36, amendment 29, Appendix G</p>
<u>Production Basis</u>	None
<u>Ground Control Station:</u>	<p>P/N 900-201124-001</p> <p>P/N 900-201125-002</p>
<u>UAS Support Equipment:</u>	<p>Launcher: Insitu P/N 090-000200R00. See Note 6 and Note 10.</p> <p>Skyhook: Insitu P/N 900-200402-005. See Note 6 and Note 10.</p>
<u>Certification Maintenance Requirements:</u>	<p>For UAS operating in the "New Mexico Railroad Area" only:</p> <p>Every 100 flight hours or 60 days, whichever occurs first, transponder tests and inspections must be performed in accordance with 14 CFR part 43, Appendix F. This testing must be recorded in the UAS aircraft logbook.</p>

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 5
- Wind Limitations:
- (a) Max gusts for launch and recovery: 5 KT (5.75 mph, 9.26 kph)
 - (b) Launches (including gusts):
 - 1. 10 KT from +/- 30° relative to the launcher centerline.
 - 2. 20 KT from +/- 20° relative to the launcher centerline.
 - 3. Launches with tailwinds: PROHIBITED.
 - (c) Recoveries (including gusts):
 - 1. Port recoveries:
 - a. 20 KT from 320° to 350° relative to the ship centerline.
 - b. 30 KT from 320° to 330° relative to the ship centerline.
 - 2. Starboard recoveries:
 - a. 30 KT from 10° to 40° relative to ship centerline.
 - 3. Recoveries with tailwinds: PROHIBITED.
 - (d) Wind limitations during flight:
 - 1. Max winds (sustained plus gusts): 40 KT
 - 2. Max gust component (gusts are considered any wind variations above the measured sustained value): 10 KT
- NOTE: Ship launch and recovery wind over deck conditions shall be determined by shipboard wind measurement and indication system.
- NOTE 6 Personnel Keep Out Zones. Typical exclusion zones apply for Launch and Recovery (SkyHook) as described in AFM and UAS Operations Manual.
- NOTE 7 This Type Certificate Data Sheet (TCDS) is the principal document for ScanEagle Operation. For any operational discrepancies among the TCDS, AFM, Insitu ScanEagle Ops. HDBK, etc., this TCDS takes precedence.
- NOTE 8 Restricted category aircraft may not be operated in a foreign country without the express approval of that country.
- NOTE 9 This aircraft has not been shown to meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 of the Convention on International Civil Aviation. This aircraft meets 14 CFR 21.25(a)(2).
- NOTE 10 For this restricted category type certificate, the part numbers of the Launcher and Skyhook must be those listed under UAS Support Equipment of this Type Certificate Data Sheet.

- NOTE 11 Operations shall be conducted by properly certificated airmen who have completed training, checking, currency, and recency of experience requirements as approved by the Administrator.
- NOTE 12 The Flight Standards Board (FSB) report is available on request. Contact the Long Beach AEG (LGB-AEG-NM17).
- NOTE 13 No aircraft may be manufactured under this approval.
- NOTE 14 Compliance to §21.25 (a) (2) was demonstrated through a deviation to FAA Order 8110.56 Revision A. The AIR-100 deviation memorandum was dated July 5, 2013, and expansion of this memorandum was dated November 5, 2014.
- 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: 35 lb (15.9 kg)
- Fuel Capacity: Fuel system: 7.1 lb of fuel (3.2 kg)
- NOTE 16 For UAS operating in the “New Mexico Railroad Area” only:
 (a) The installation of transponder P/N 400-819506-000 is required;
 (b) The transponder is exempt from compliance with the ATC transponder Technical Standard Order (TSO) requirements referenced in 14 CFR 91.215 - see FAA approved exemption 13335