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**Why an Experimental License is Necessary:**

An experimental license is required to support UAS testing at the Near Space FAA UAS test site using the Scan Eagle 3 platform.

**Operation Description:**

The radio frequency equipment listed below will be used to support L-Band and C-Band command and control, video downlink, Detect and Avoid Radar, ATC transponder and other data link operations,

The below tables list the radio frequency equipment specifications, including frequency band of operation, transmitter output power, emissions, antenna types and gains, and maximum ERP.

<b>Frequency Data</b>	
Transmit	1370-1390 MHz
<b>Transmitter Data</b>	
Transmitter Model	P-501X005
Transmitter Manufacturer	Freewave Technologies
Transmitter Power Output	1 Watt
Antenna Gain	0 dB
Antenna Type	Center-Fed Half-Wave Dipole (Vertical)
Power Output ERP	1 Watt
<b>Emission Data</b>	
Emissions	230KF1D

**Table 1 – Freewave L-Band C2 Aircraft Data**

<b>Frequency Data</b>	
Transmit	5060-5070 MHz
<b>Transmitter Data</b>	
Transmitter Model	MM2-M13 + Frequency Converter
Transmitter Manufacturer	Freewave Technologies + Nuwaves
Transmitter Power Output	1 Watt
Antenna Gain	5 dBi
Antenna Type	Dipole (Vertical)
Power Output ERP	2 Watt
<b>Emission Data</b>	
Emission	230KF1D

**Table 2 – Freewave C-band C2 Aircraft Data**

<b>Frequency Data</b>	
Transmit	2360-2390 MHz
<b>Transmitter Data</b>	
Transmitter Model	Bandit
Transmitter Manufacturer	L-3
Transmitter Power Output	2 Watts
Antenna Gain	0 dB
Antenna Type	Monopole
Power Output ERP	2 Watts
<b>Emission Data</b>	
Emissions	18M5F9W, 9M58G1D, 4M79G1D, and 2M40G1D

**Table 3 – L-3 Bandit Payload Aircraft Data**

<b>Frequency Data</b>	
Transmit	2377, and 2395-2483 MHz
<b>Transmitter Data</b>	
Transmitter Model	MPU5
Transmitter Manufacturer	Persistent Systems
Transmitter Power Output	10 Watt total (3 transmitters with 3.3 Watts each)
Antenna Gain	6 dBi
Antenna Type	Dipole
Power Output ERP	25 Watts
<b>Emission Data</b>	
Emissions	5M0D1D, 10M0D1D, 20M0D1D

**Table 4 – Wave Relay MPU5 Aircraft Data**

<b>Frequency Data</b>	
Transmit	15400 - 15700 MHz
<b>Transmitter Data</b>	
Transmitter Model	DAA - R20
Transmitter Manufacturer	Fortem Technologies, Inc.
Transmitter Power Output	2 Watts
Power Output ERP	30 Watts
<b>Emission Data</b>	
Emissions	300MF0N
Modulation	FMCW PRF 1Khz
Frequency Tolerance	0.00009400 %

**Table 5 – Fortem RADAR Aircraft Data**

<b>Frequency Data</b>	
Transmit	1090 MHz
<b>Transmitter Data</b>	
Transmitter Model	Ping 200S
Transmitter Manufacturer	uAvionix
Transmitter Power Output	229 Watts
Power Output ERP	442 Watts
<b>Emission Data</b>	
Emissions	8M24M1D
Frequency Tolerance	2020 Hz

**Table 6 – uAvionix Transponder Aircraft Data**

<b>Frequency Data</b>	
Transmit	1370-1390 MHz
<b>Transmitter Data</b>	
Transmitter Model	P-501X005
Transmitter Manufacturer	Freewave Technologies
Transmitter Power Output	5 Watt
Antenna Gain	23 dB
Antenna Type	1.8 Meter Parabolic Reflector Ant. Vert. Beamwidth: 8 degrees Ant. Horz. Beamwidth: 8 degrees
Power Output ERP	608 Watts
<b>Emission Data</b>	
Emissions	230KF1D

**Table 7 – Freewave L-band C2 Ground Control Station Data**

<b>Frequency Data</b>	
Transmit	5060-5070 MHz
<b>Transmitter Data</b>	
Transmitter Model	MM2-M13 + Frequency Converter
Transmitter Manufacturer	Freewave Technologies + Nuwaves
Transmitter Power Output	10 Watt
Antenna Gain	33.3 dBi
Antenna Type	1.2 Meter Parabolic Reflector 3.5 degrees HPBW 360 degrees in azimuth 0 to +70 degrees elevation
Power Output ERP	13,200 Watts

<b>Emission Data</b>	
Emission	230KF1D

**Table 8 – Freewave C-Band C2 Ground Control Station Data**

<b>Frequency Data</b>	
Transmit	2377, and 2395-2483 MHz
<b>Transmitter Data</b>	
Transmitter Model	MPU5
Transmitter Manufacturer	Persistent Systems
Transmitter Power Output	6.6 Watt total (Optional 20 Watt amplifier)
Antenna Gain	6 dB 28 dBi Parabolic
Antenna Type	Dipole
Power Output ERP	2.6 Kilowatts 7.8 Kilowatts (With Amplifier)
<b>Emission Data</b>	
Emissions	5M0D1D, 10M0D1D, 20M0D1D

**Table 9 – Wave Relay MPU5 Ground Control Station Data**

Table 10 lists the locations/areas of operations, as well as the station class of the operation.

City	State	Latitude	Longitude	Radius (KM)	Station Type
Tillamook Near Space Corporation FAA UAS Test Site	OR	45-25-09 N	123-48-52 W	2	Fixed/Ground
Tillamook Near Space Corporation FAA UAS Test Site	OR	45-25-09 N	123-48-52 W	110	Mobile/Airborne 10,000 Feet Altitude

**Table 10 – Location Data**

45° 25' 09" N / 123° 48' 52" W

60 km radius

Surface to 10,000 ft MSL

Picture for reference:



BLUE HALF CIRCLE: Northeast Corner : 46-24-12.38N 123-34-26.28W Straight Down to 44-41-54.94 N 12334-55.74W Direct to 44-24-42.58N 123-48-21.74W then Clockwise on TKMK 60NM Circle to Point of Beginning.

Surface to 18,000 ft MSL (60NM radius from KTMK, and 10 NM East of TMK)

Picture for reference: BLUE HALF CIRCLE ONLY



**Stop Buzzer POC:**

Stop Buzzer for this operation is Insitu Operations Action Center at 509-493-4691.