Submitted by Joel Thorsheim on behalf of Insitu
The Boeing Company
Frequency Management Services
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Why an Experimental License is Necessary:
An experimental license is required to test and operate a Merlin-Harrier RADAR system. This radar will be used as a surveillance radar.

Operation Description:
The request for license approval is based on the need to test UAS ground based detection system radars, ADS-B, and Mode-C sensors packages that will provide air picture awareness only inside the Ground Control Station. This technology will be added as one of many layers of safety for applications to conduct UAS BVLOS operations. The radar operates in the S frequency band. ADS-B and Mode C sensor packages are receive only.

Table 1 lists the equipment specifications and table 2 shows the location data.

Frequency Data	
Transmit Frequency Bands	S-Band: 2.93 to 3.07 GHz +/- 15 kHz
Transmitter Data	
Transmitter Model	Merlin-Harrier Avian
Transmitter Manufacturer	Detect
Transmitter Power Output	170 Watts Peak
Antenna Data	
Antenna Gain	≥ 28 dB
Power Output ERP	17 MW
Emission Data	
Emission Designator	S-Band: 29M8P0N and 42M5Q8N

Table 1– Merlin-Harrier RADAR

City	State	Latitude	Longitude	Radius (KM)	Station Type
Bingen	WA	045° 42' 20" N	121° 27' 30" W	100	Ground Mobile
Arlington	OR	045° 43' 01" N	120° 10' 22" W	100	Ground Mobile
Boardman	OR	045° 44' 54" N	119° 48' 13" W	100	Ground Mobile
Pendleton	OR	045° 41' 43" N	118° 50' 30" W	100	Ground Mobile

Table 2 – Location Data

Stop Buzzer POC:
Stop Buzzer for this operation is Insitu Operations Action Center at 509-637-4691.