

UAS RADAR Integration

Submitted by Joel Thorsheim on behalf of Insitu
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Frequency Management Services
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Why an Experimental License is Necessary:

A Special Temporary Authorization is required to operate in the Ku and C frequency bands to support short duration National Air Space (NAS) integration tests.

Operation Description:

This test will support a Ku frequency band ground surveillance radar system and the command and control system on a manned aircraft using a VHF frequency for discrete flight test communications. Operations at Ackerman, MS will utilize a manned aircraft while operations at Watford ND are unmanned.

Tables (1, 2, and 3) lists the equipment specifications, including frequency band of operation, transmitter output power, emissions, antenna types and gains, as well as maximum ERP.

Frequency Data	
Transmit Frequency Band	16.2 to 17.2 GHz
Transmitter Data	
Transmitter Model	B400
Transmitter Manufacturer	Blighter
Transmitter Power Output	6.53 Watts
Antenna Data	
Antenna Type	Passive Electronically Scanned Array
Antenna Gain	30 dBi
Power Output ERP	4,000 Watts ERP
Emission Data	
Emission Designator	26M0F1D

Table 1 – Equipment Data L-Band

Frequency Data	
Transmit Frequency Band	5030-5040 MHz
Transmitter Data	
Transmitter Model	Freewave
Transmitter Manufacturer	Freewave Technologies

Transmitter Power Output	1 Watt
Antenna Data	
Antenna Type	Dipole and 1.2 Meter Parabolic Reflector
Antenna Gain	6 dBi and 33.53 dBi
Power Output ERP	1259 Watts ERP
Emission Data	
Emission Designator	230KF1D

**Table 2 – Equipment Data
C-Band C2 Ground Station**

Frequency Data	
Transmit Frequency Band	5030-5040 MHz
Transmitter Data	
Transmitter Model	Freewave
Transmitter Manufacturer	Freewave Technologies
Transmitter Power Output	1 Watt
Antenna Data	
Antenna Type	Dipole Omni
Antenna Gain	2 dBi
Power Output ERP	1 Watt ERP
Emission Data	
Emission Designator	230KF1D

**Table 3 – Equipment Data
C-Band Manned Aircraft (Airborne)**

Frequency Data	
Transmit Frequency Band	123.175 MHz
Transmitter Data	
Transmitter Model	IC-A120E
Transmitter Manufacturer	ICOM
Transmitter Power Output	9 Watts
Antenna Data	
Antenna Type	Dipole Omni
Antenna Gain	0 dBi
Power Output ERP	9 Watt ERP
Emission Data	
Emission Designator	6K80A3E

Table 4 – Equipment Data VHF

City	State	Latitude	Longitude	Radius (KM)	Station Type
Ackerman	MS	33-12-06 N	89-13-38 W	100	Manned Aircraft Mobile/Air 5K Flight Level
Watford	ND	47-48-08 N	103-16-59 W	100	Mobile/Air 5K Flight Level

Table 5 – Location Data

Operation Period:

Start Date: November 1, 2017

Stop Date: April 30, 2018

Stop Buzzer POC:

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