

Raytheon Company
Experimental Application
File Number: 1009-EX-CN-2021

Explanation of Experiment

Overview:

Raytheon Company is the primary missile manufacturer in the US, supplying ordinance ready to operate to the US military. Raytheon's experience with missiles has led its customers to seek UAV technology based on some of its existing platforms and knowledge. This has led Raytheon into the development of advanced UAV technology as well.

This application seeks authorization for the use of a radio that is used in the development and testing of its advanced UAVs. The radios incorporated into the UAVs support the mission of the UAV testing.

Need for license:

Raytheon has a contract with the US Navy for the advanced development of the UAV systems. Raytheon's customers are requesting a test/demonstration near Cherry Point, North Carolina. Additional time was requested on the license should the demonstration be postponed for any reason, however the actual operational timeline for the demonstration will not be limited to one event in April and one event in August.

Raytheon agrees to coordination with the regional AFC and installation spectrum manager as required.

Technical Synopsis:

- Spectrum Needed: 1380 MHz, emission is 20 MHz wide
 - Frequency selected due to previous FAA comments on restricted use in the M1350-M1370 range on previous coordination(s).
- Limited Time of Use: only occasional testing at this location
- Limited time of use: 1-2 hours per day of radio use
- Limited area of operations: maximum 3000 feet elevation
- Power levels are low for airborne operations: 16 W ERP
- Ground control power: 90 W (ERP)

Description of Operations:

Raytheon needs to demonstrate performance characteristics of its Coyote UAV system. This UAV platform has been designed to perform a range of tasks. They include surveillance and monitoring. Those tasks require the UAV to carry a range of radio links to ensure its proper performance. This application is for a dedicated datalink that is essential to the performance of this UAV platform.

Limited Time of Use:

The UAVs are tested using batteries. The battery life lasts up to two hours. Because the program will need to process test results, they normally only schedule one test per day to take advantage of overnight recharging for the batteries.

The demonstrations will only take place occasionally, as the program will be testing in other locations around the country. So, the spectrum use will be very limited at this location.

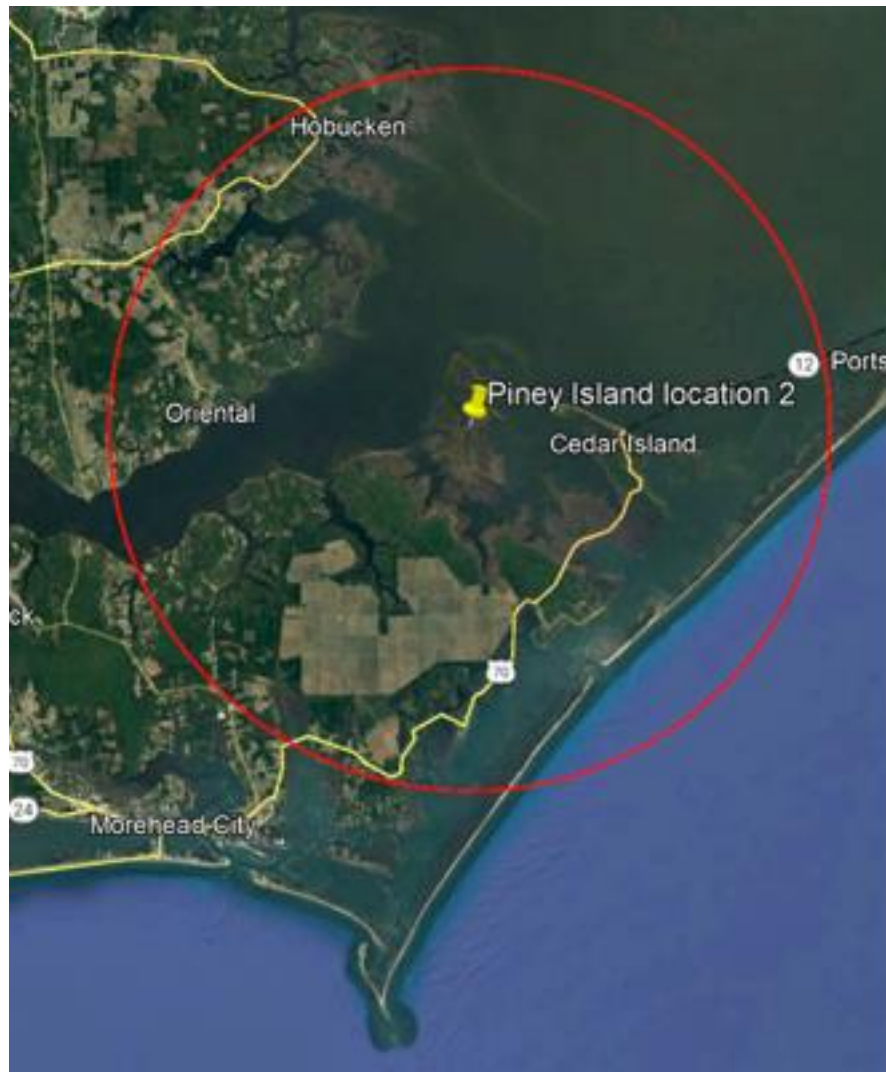
Locations of Testing:

Location: PINEY ISLAND

Lat/Long: 35°01'13.56"N 76°27'21.92"W

Radius: 30 Km

AirSpace: R-5306A



Spectrum Use:

L band frequencies: These frequencies are used as datalinks to transmit data while the UAVs are in flight.

Local deconfliction: the program will work with local spectrum managers prior to any flight operations to deconflict radio operations that are local to the area.

Stop Buzzer Point of Contact:

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Conclusion:

Raytheon is seeking an authorization for test and demonstration operations. The events are to show the development of the Coyote UAV system. The proposed testing will be limited in nature. The radio use will be limited, because the systems will not be tested in all locations at the same time. Furthermore, only selected parts of the frequency bands requested will be in use at any time. The bands were requested to expedite local spectrum coordination.