

Raytheon Missile Systems
Experimental License STA Application
File Number: 1127-EX-ST-2019

Explanation of Experiment and Need for an STA

Raytheon Missile Systems (Raytheon) 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 variety of radio systems that are 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 an STA:

Raytheon has been asked to conduct a demonstration for Navy officials from July 15 to 26, 2019. The demonstrations have been scheduled to accommodate the officials' availability. These demonstrations have been planned for some time, but Raytheon spectrum management only learned of the need for the STA recently. To ensure that the STA will cover contingencies, this request asks for an additional week in case of inclement weather or personnel schedule changes.

Technical Synopsis:

Spectrum requested: 1377 MHz, 1379 MHz, and 1382 MHz, emission is 10 MHz wide
Limited time of use: 1-2 hours per day of radio use
Limited area of operations: maximum 3000 feet elevation
Power levels are low: L band 5.5 W, only 6 W ERP

Description of Operations:

Raytheon will be taking its Coyote UAS platform for testing and demonstrations from Navy vessels in the next several weeks. These demonstrations of the Coyote system are intended to illustrate the platform's ability to perform various tasks required by the Navy.

This UAV platform has been designed to perform a range of tasks. The link being demonstrated in here can accommodate a number of those tasks.

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.

Further, the program will not be testing at both locations at the same time, so the amount of spectrum use at any location will be very limited.

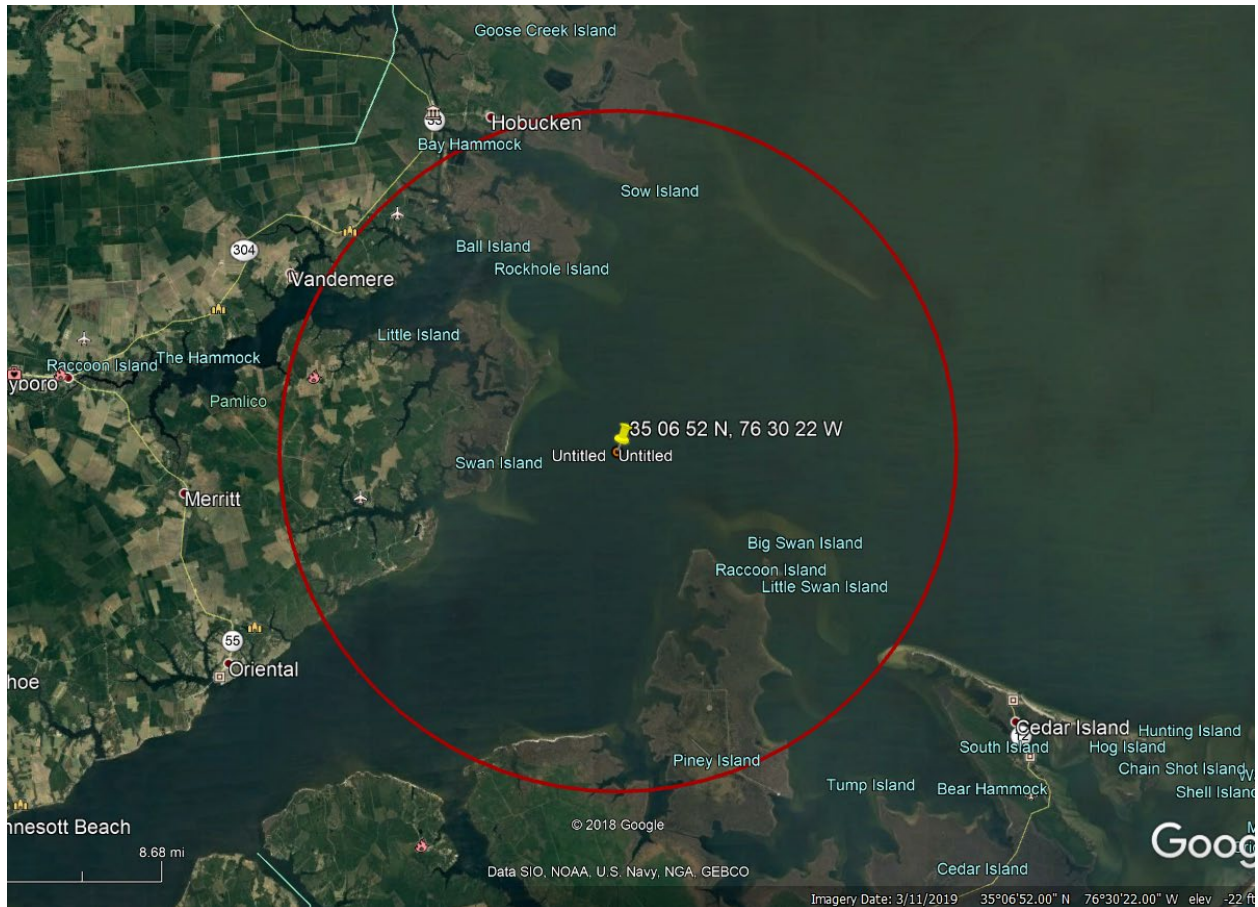
Locations of Testing:

Location 1:

Advanced Naval Technology Exercise (ANTX) in R5306A restricted area

Dates: 15-17 July

Location: 8nm radius of N035° 06' 52" W076° 30' 22" – see below



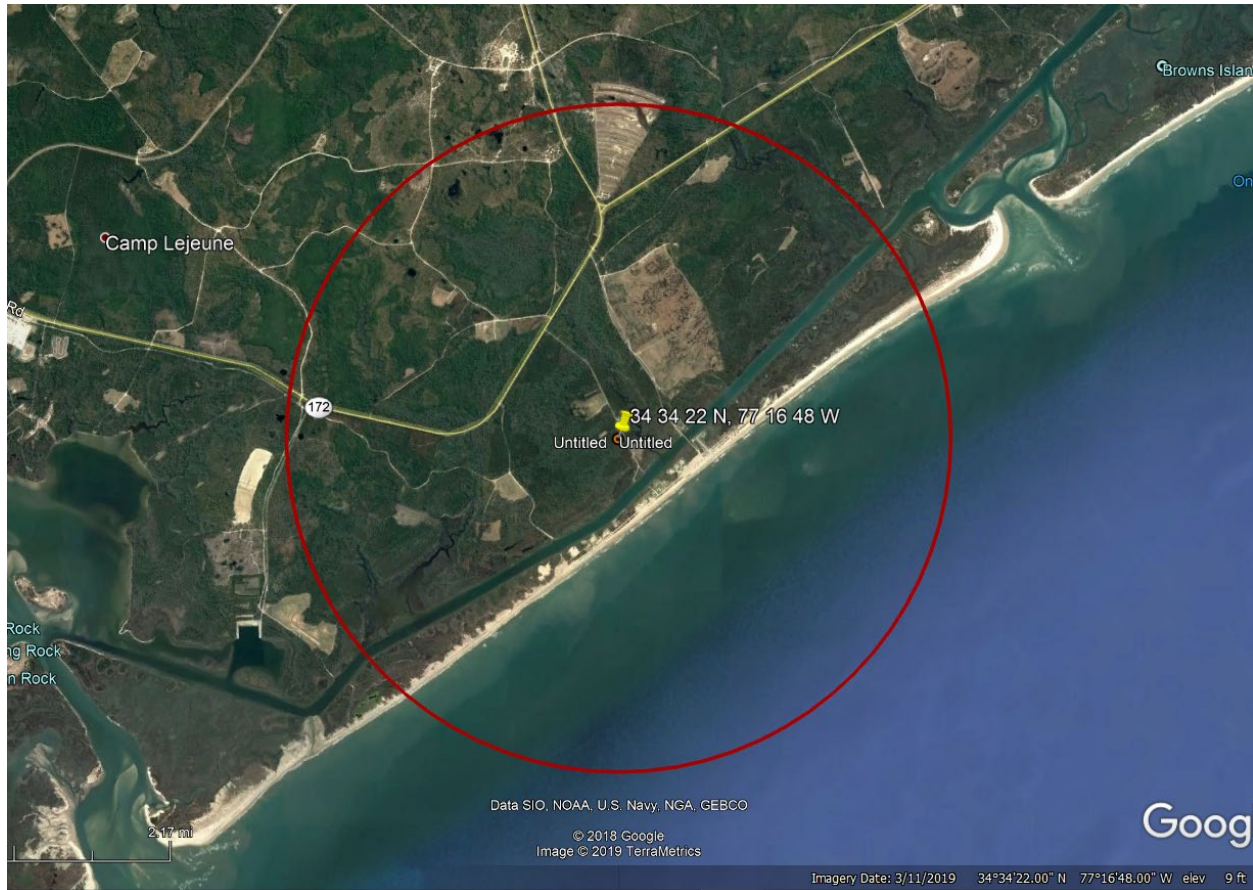
The testing will be conducted from Navy vessels that will operate in the designated area. Operations in this area are expected to take place July 15-17.

Location 2:

Advanced Naval Technology Exercise (ANTX) execution in R5306D restricted area

Dates: 18 & 19 July

Location: 2nm radius of N034° 34' 22" W077° 16' 48" – See Below



The testing will be conducted both onshore and offshore within the designated area. Operations in this area are expected to take place July 18-19.

The next week has been added to this application in case there is any need to postpone one or both of these tests due to weather conditions or personnel schedule changes.

Spectrum Use by Band:

L band frequencies: These 1377, 1379, and 1382 MHz frequencies are used as datalinks to transmit data while the UAVs are in flight. These radios use a specifically configured frequency within the band. Most of the spectrum will be unused. The radios are programmed for the flights. L band power level is 5.5 W with an ERP of 6 W.

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 STA for temporary, demonstration operations for the US Navy. Some of the demonstrations will take place from vessels operating offshore. The demonstrations 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.

If there are any questions about this proposed operation, please contact Anne E. Cortez, counsel, Washington Federal Strategies, at 520-360-0925 or alc@conspecinternational.com.