

Raytheon Missile Systems  
Experimental License STA Application  
File Number: 1035-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 in to 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 June 25 to 27, 2019. The demonstrations have been scheduled to accommodate the officials' availability. Today, the Navy officials who were working on federal frequency assignments for the demonstration told Raytheon that the Navy could not complete the authorization process. Therefore, Raytheon needs an FCC experimental STA for the demonstration.

### **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: 50 mile radius around ocean location, 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. They include surveillance and monitoring. Those tasks require the UAV to carry a range of radio links to ensure its proper performance. Each link is described in more detail below.

### **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:**

The testing will be conducted from Navy vessels that will operate in the W50 warning area. The specific location is specified in the application. The radius of operations was selected to cover Norfolk, VA, because it is likely that the program will need to turn the systems on prior to the actual demonstration to confirm that all systems are working properly.

### **Spectrum Use by Band:**

**L band frequencies:** These 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.

**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 from vessels operating off shore. 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](mailto:alc@conspecinternational.com).