Raytheon Missile Systems
Experimental STA Request
File Number: 0314-EX-ST-2017

Exhibit 1 – Explanation of Experiment and Need for STA

Background:

Raytheon Missile Systems is seeking this experimental STA to allow it to use Raveon radios to provide differential GPS (D-GPS) correction signals to various programs to allow them to use precision positioning for testing for its DOD customers.

Need for an STA:

Raytheon is seeking this STA because it must test the positioning of various products on an expedited basis. Earlier testing under WJ9XST in the Tucson, Arizona area proved so productive that the company needs to expand its testing to additional locations in California. The D-GPS technology is essential to the precise positioning, and the product testing including this D-GPS signal, is scheduled to start in mid-April 2017. An STA is necessary to get the testing started as quickly as possible.

Technical Synopsis:

- Spectrum Requested: 451.450 MHz, 471.000 MHz, and 479.500 MHz
- Duty Cycle: The system will have a duty cycle that ranges from 5-20 %
- Power levels: Only 6.1 W ERP requested.
- Occupied bandwidth: only 15 kHz

Explanation of Experiment:

Raytheon is planning to install the D-GPS radios for operation on a mobile basis, from aircraft, at three locations in California. The radios will transmit correction signals that allow for differential correction to the received GPS signal. This allows the receiving antenna to calculate a much more precise position than the use of GPS alone. The use of this technology is essential to the development and testing of Raytheon's products.

Raytheon is seeking authorization to test the use of a new radio for provision of the correction signals.

Area of Operation:

Location one is centered on San Nicolas Island, off the coast of California. Most operations will be conducted over the Pacific Ocean, within a 50 mile radius.

The second location is centered on San Clemente Island, off the coast of California. Most operations will be conducted over the Pacific Ocean, within a 50 mile radius.

The third location is near Point Mugu, California. Again, most operations will be conducted over the Pacific Ocean, since the selected location is on the coast, within a 50 mile radius.

The testing at these locations allows collaborative testing in nearby areas where Raytheon works with its Navy customers.

The maximum altitude of operations will be 10,000 feet.

Limited Potential for Interference:

Raytheon has tried to select the requested channels carefully to avoid the prospect of harmful interference to other authorized licensees in the proposed operational area. Additionally, the proposed operations request a very low effective radiated power level, to avoid propagation of the signal across a broad area.

The duty cycle of the proposed operation ranges from 5% to possibly 20%. Nevertheless, this limited amount of use helps to ensure that the operation of these radios will not affect any other licensed radio operations. The signal is in use from 50 milliseconds to 200 milliseconds. Most radio receivers will dismiss these very short signals as radio noise, and not process them at all.

Stop Buzzer Point of Contact:

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Conclusion:

For further information about this STA request, please contact Anne Linton Cortez, 520-360-0925, alc@conspecinternational.com or Tom Fagan, 520-794-0227, tjfagan@raytheon.com.