

Raytheon Missile Systems
Experimental License Application
File Number: 0408-EX-CN-2017

Exhibit 1 – Explanation of Experiment

Background:

Raytheon Missile Systems is seeking this experimental license to allow it to continue 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.

Raytheon was granted STA @K9XMU for these operations to test operations of the radios to provide the D-GPS correction signals. The initial testing has proven very effective, and Raytheon needs to continue testing to improve the positioning it is able to achieve using the D-GPS radios. Therefore, it is filing this application to extend the operations.

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 has installed the D-GPS radios for operation on a mobile basis within a 120 km radius of the Destin-Ft. Walton Beach Airport, Valparaiso, Florida. The radios transmit the 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. At this point, Raytheon is seeking authorization to conduct ongoing testing of use of this radio for provision of the correction signals.

Area of Operation:

Raytheon is seeking to operate near where it conducts customer demonstrations of its products in Florida, near Eglin Air Force Base. This allows collaborative testing in nearby areas where Raytheon works with its DOD customers.

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. During the period of operations under the existing STA, there have been no issues of interference.

The duty cycle 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 license request, please contact Anne Linton Cortez, 520-360-0925, alc@conspecinternational.com or Tom Fagan, 520-794-0227, tjfagan@raytheon.com.