

Raytheon Missile Systems
Experimental License Application
File Number: 0487-EX-CR-2018

Exhibit 1 – Explanation of Experiment

Background:

Raytheon Missile Systems is seeking to renew its experimental license to allow it to continue using 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 started this testing in 2016. The D-GPS technology is essential to the precise positioning. The initial testing was very successful, and Raytheon's program has determined that it will be important to continue testing the positioning technology in its products on an on-going basis.

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 installed the D-GPS radios for operation on a mobile basis within a 100 km radius of the Raytheon plant site. The radios 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. At this point, Raytheon is seeking authorization to extend its use of D-GPS radios for provision of the correction signals.

Area of Operation:

Raytheon is seeking to operate near its plant site in the Tucson area. This area covers Raytheon's various facilities in Tucson, and it 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.

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 experimental license request, please contact Anne Linton Cortez, 520-360-0925, alc@conspecinternational.com.