Raytheon Missile Systems
Experimental License Application
File Number: 0356-EX-CN-2018

Explanation of Experiment

Overview:

Raytheon Missile Systems (Raytheon) designs and builds missile systems and other products for the agencies of the federal government and select, approved other customers. Raytheon's products need to transmit data while in flight, to provide operators key information about the use of the systems. The proposed application seeks authorization for data link that is under development.

Raytheon was asked to demonstrate a developing data link technology for joint development of its capabilities with customers. Raytheon sought and obtained an STA for its initial testing and demonstrations. The technology has proved fruitful, and additional testing is needed to determine how best to develop the capabilities required by Raytheon's customers. At this point, Raytheon is filing this application to extend operations that were authorized under WM9XHX.

Synopsis:

- Spectrum needed: 1720-1735 MHz and 1985-2000 MHz
- Signal level: 10 Watts, with 48.4 W ERP
- Locations: Tucson, AZ, Eglin AFB, Utah Test and Training Range
- Ground-based testing of a robust, interference-resistant data link
- Time of Use & Duty Cycle: 4 hours per day, operations take place about 1 day out of four, duty cycle: 10%

Nature of the Experimentation:

Raytheon is working on the development of advanced digital data links that are difficult to detect and resist interference. This testing will explore the operations of the radios that may be used for the new data links.

Locations for this testing:

Raytheon has been asked to develop these data links in conjunction with the needs of some of its military customers. The testing is required at Raytheon's plant site in Tucson, Arizona, at Eglin AFB, and at the Utah Test and Training Range.

The transmitter will be mounted on a trailer that can be moved around the test sites. It will be no more than five feet above the ground. The test sites are protected from access by the general public.

Time of Use:

In the synopsis above, Raytheon explained briefly that the system will be in use for a limited period of time. The purpose of the testing is to ensure that the radios operate as expected. The tests will be used to verify that the signals resist interference and are virtually impossible to detect. The duty

cycle of the radio system when the system is in use is merely 10%. Only one site will be in use at any time. At each site, the testing will take place only for four hours per day.

Frequency Use:

The proposed operations will use pulsed signals. The application requests spectrum bands that are 15 MHz wide. The testing actually needs 10 MHz of spectrum; the additional spectrum was requested to permit carve outs, if the Commission finds them necessary.

No likelihood of harmful interference to other users:

The signal levels proposed are generally low. The signals are expected to be directed above the horizon, so the energy is expected to be dissipated into the atmosphere, after attenuation from surrounding buildings.

The directional antenna should mitigate the effects of sidelobe energy, minimizing the chances of interference to surrounding areas.

Further, Raytheon will undertake frequency coordination with other entities, as required by the FCC.

Stop Buzzer Point of Contact:

Raytheon's Stop Buzzer point of contact is:

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Conclusion:

Raytheon is seeking authorization for the ongoing testing of an advanced data link that will be resistant to interference and difficult to detect. This application seeks limited operations in three areas for a short period of time.

If there are any questions about this application or if any additional information is needed, please contact Anne L. Cortez, Washington Federal Strategies, 520-360-0925 or alc@conspecinternational.com.