

Explanation of Experiment

Raytheon Missile Systems (Raytheon) is a US defense contractor that develops innovative technologies that can be used by the military. Currently, Raytheon's innovation labs in Rancho Cucamonga, California have been working on the development of a new broadband technology. Raytheon has begun its experimentation on the use of W band frequencies for advanced data links under STA WF9XHI. This application proposes to continue the experimentation, because the early research has shown significant results in improving data flow over the new solid-state technology using high frequencies.

Description of Experiment:

Currently, Raytheon is working on a new product that uses high bandwidth solid state W-band (92-94 GHz) technology, making it possible to deliver compact, secure communications systems with orders of magnitude reductions in size, weight and power.

Reducing the size, weight and power needed by broadband data links is essential when working in harsh climates. Traditional point to point technologies operating in this frequency band use large antennas that are buffeted by wind. The buffeting causes a significant drop in data rates, which leads to inefficient communications, lowering of available bandwidth, slowing of vital communications, and wasted power by the transmitters. This technology offers significant advances in power consumption, rapid deployment, and effective high-speed data transmissions under all conditions.

At this point, Raytheon needs to extend its experimentation by seeking this FCC authorization to continue testing of experimental technology on its radio test range to improve the way that it works at distances of up to 1 kilometer.

The purpose of the experimentation is to continue the development of Raytheon's advanced, high-power, solid state W-band technology for communications applications. The advanced development will enhance the feasibility of using the technology for robust communications systems that are portable and rapidly deployable. This test will include measuring the performance of a prototype 320 Mbps, high frequency (92-94 GHz), static communication link at a separation of 1 km between the transmitters. The test will take place at the ITT Loop Canyon Antenna Test facility.

If there are any questions about this application or the proposed use of the spectrum, please contact Thomas J. Fagan, Spectrum Manager, Raytheon Missile Systems, 520-794-0227 or tjfagan@raytheon.com, or Anne Linton Cortez, Washington Federal Strategies, 520-360-0925 or alc@conspecinternational.com.