

Raytheon IIS  
Experimental License Application  
File No. 0627-EX-PL-2015

## **Explanation of Experiment**

### Overview:

Raytheon IIS develops a number of advanced communications technologies that are utilized by federal government customers in their work. These technologies require extensive testing to deliver the advanced performance required. The product development involves testing, demonstration to prove performance, refinement of the technology, further testing, further demonstration, additional refinement, etc.

The proposed temporary operations are for the demonstration and then further development of the technology.

In June, Raytheon IIS began testing an advanced communications product, as independent research and development, for a number of government customers. After initial demonstrations of the technology under WI9XPV, those customers determined that they would like Raytheon to continue development of the technology. Thus, Raytheon is filing this experimental license application to extend authorization to test the radio systems under development

### Explanation of Experiment:

The proposed operation will continue to examine the physical aspects of situational awareness radio infrastructure design and the associated propagation techniques. Raytheon IIS has established a wireless lab environment for the purpose of gaining additional insight into the wide variety of wireless technologies that are currently available and those that may be available in the future. This testing uses unique test equipment that is only sporadically available at the two demonstration sites under the supervision of Raytheon personnel who have specialized training for the proposed testing of radio infrastructure and associated propagation techniques.

### Limited Area of Operations:

The proposed testing will be centered at the designated locations on the application in Wilsonville and Aurora, Oregon. The proposed operations will be conducted outside, within a 3 mile radius of the designated coordinates. This will allow for the effective demonstration of the technology development to date and allow the customer to specify what additional features and improvements are needed in the development of the technology.

### Limited Time of Use and Low Duty Cycle:

Raytheon anticipates using the radios during business hours (9AM - 3PM), only for 1-3 hrs/day. Raytheon anticipates that the testing will require only about one test per month, or approximately 12 tests per year, due to the limited accessibility of the equipment and personnel needed for testing.

When the radios are in use for testing, the duty cycle is only 50% in the selected band. Furthermore, not all of the spectrum will be in use for each time that the radios are on. As explained above, Raytheon expects that over the air testing will only occur 1-3 hrs per day. The spectrum will be in use for very limited time during the proposed demonstration and testing period, and only some of the spectrum will be in use at any time during the testing.

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Conclusion:

After a successful demonstration in June to government customers, Raytheon is working on extended testing and development of this radio system. Raytheon is now seeking this authorization to use spectrum in the 420-450 MHz band for demonstration and testing of advanced communications systems. The time of use will be very limited, the area of operations is limited to a three mile radius around the two locations on the license, and the duty cycle of the radio transmissions will limit the amount of time that this spectrum would be in use.

If there are any questions regarding this application, please contact Melvin Peters, Raytheon IIS, 571-250-2087 (office) or 703-201-3817 (mobile) or [mel@raytheon.com](mailto:mel@raytheon.com), or Anne Cortez, WFS, 520-344-8525 or [alc@conspecinternational.com](mailto:alc@conspecinternational.com). Thank you very much for your consideration.