

Raytheon Missile Systems  
Experimental Renewal Application  
Call Sign: WE2XSU  
File No.: 0364-EX-CR-2017

### **Explanation of Experiment**

#### Overview:

Raytheon Missile Systems (Raytheon) is a defense contractor that builds missiles and a variety of other products that are sold to the US Department of Defense, including a number of advanced radar systems that are used by DOD. This application seeks to renew authorization for its advanced radar development and testing. The goals of the testing are:

- Lengthen the achievable radar detection distance
- Enhance small object detection
- Improve detection of ever-stealthier objects
- Test the use of 30 GHz frequencies to aid in addressing issues of X band radar congestion

#### Synopsis:

Area of operation:	nationwide, airborne mobile, primarily rural, unpopulated areas
Emissions:	40M0G1N and 1G00F0N
Purpose:	Advanced radar development, testing, and experimentation
Time of use:	at most 1440 minutes per year

#### Description of Experiment:

Raytheon continues to develop and test improvements to its radar systems. The enhancements to the technology allow for object detection at ever greater distances. Continued development and testing of radar systems in this frequency band allows Raytheon to increase the ability of the radar systems to detect ever-smaller and ever-stealthier objects. Advances in aircraft and missile technologies require that the US military have the most sophisticated radar systems available to detect and deter threats.

The experimentation uses broader spectrum bands with different emissions to fine tune how the radar systems operate. Additionally, the new systems incorporate higher powered computer processors to improve the analysis of the information generated by the radar systems.

#### Location and Time of Use:

The spectrum is in use approximately 1440 minutes per year, based on six weeks of flight testing per year, with only 10 four-hour flights per week, and a 10% duty cycle during each flight. That is the

theoretical maximum amount of spectrum use. The program seldom achieves 6 weeks of testing per year, and almost never reaches 10 flights per week when it is testing. Thus, the spectrum is used very little.

Further, the flights are planned for remote, unpopulated areas of the country.

Stop Buzzer:

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Conclusion:

Raytheon seeking renewal of WE2XSU for ongoing development and testing of advanced radar systems. The testing is expected to continue producing advances in radar technology.

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