

Raytheon Missile Systems
Experimental License Modification Application
Call Sign: WE2XSU
File No.: 0110-EX-ML-2012

Explanation of Need for Modification

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 modification application seeks authorization to modify an existing experimental license, WE2XSU, to expand 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:

Spectrum band requested:	30-36 MHz
Area of operation:	nationwide, airborne mobile
Emissions:	40M0G1N and 1G00F0N
Purpose:	Advanced radar development, testing, and experimentation
Modification:	Adds spectrum to allow for improved detection at great distance

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.

Need for Additional Spectrum:

Raytheon has been developing and testing radar systems in various radio bands since the company's founding. New aircraft technology, advances in missile technology, and increasing applications of stealth technology make ongoing development of advanced radar systems essential to serve the US military. Raytheon is seeking to increase the spectrum authorized on this license so that it can provide radar systems with the performance levels demanded by DOD.

Further, existing radar systems operating in lower frequency bands can face radio congestion, which creates even greater pressure on the performance of the radar systems. Thus, Raytheon is seeking new ways to deliver high performing systems that meet the needs of its DOD customers.

The authorization to use spectrum from 30-36 GHz will allow Raytheon to hone the performance of its radar system without spectrum constraints. This should lead to significant advances in radar technology.

Conclusion:

Raytheon is seeking authorization to add frequencies to one of its existing experimental licenses for the development and testing of advanced radar systems. This modification application requests authority to test radar development from 30 – 36 GHz, using two different emissions. The testing is expected to lead to more advances in radar technology.

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