

Raytheon Company (Missiles & Defense – M)
Experimental License Application
Call Sign: WJ2XYR
File Number: 0197-EX-CR-2021

Explanation of Experiment

Raytheon Company (Missiles & Defense – M) (Raytheon) develops and builds advanced systems for US government customers. As demands continue to increase for advanced radar systems, Raytheon continues to develop new radar-based technologies in its missile systems. This application seeks renewed authorization for testing such a system.

The radar technology is being tested to determine if it is usable to track objects in the air, in sync with an optical tracking technology.

Description of Experiment

Raytheon has mounted the radar system atop a platform on a trailer. The radar system is integrated with an optical tracking system that Raytheon is also testing. The purpose of the tests is to see if this radar system is effective in keeping the optics portion of the system tracked on an object during flight. The system is an advanced Doppler radar.

The radar system is operated from 0 to 90 degrees in the vertical plane, depending on the position of the object in the air. The beamwidth of the signal is narrow, due to the antenna gain of 36 dBi.

Technical Synopsis

Spectrum Needed: 10.176 GHz
Area of operations: remote areas in New Mexico and Arizona
Limited time of use: operations only during the workday, in Arizona only Monday to Thursday

Location of Operations

Raytheon tests at two sites in Arizona and one in New Mexico. The radar antenna is mounted on a pedestal on a trailer, which moves the antenna into place for testing. The overall height of the antenna on the trailer is 33 feet.

The sites in Arizona are in the southwestern portion of the state. Raytheon has confirmed that its operations are far from any airport, so no tower registration requirements apply to this 33-foot high antenna.

Operations in Arizona take place Monday through Thursday, for 10 hours a day. The spectrum will not be in use constantly during the day, because there will be time between flights.

The site in New Mexico is centered at Spaceport America. No tower registration requirements apply at this site, either.

Operations in New Mexico will take place Monday-Friday, during the workday. The spectrum is not be in use constantly during the day, because there will be time between flights.

Directional Antenna

The antenna has gain of 36 dBi. This will concentrate the energy. The ERP is 194.2 kW, however, the beam is narrow due to the directionality of the antenna. With operations in remote areas, the chances of any interference to other operations is very low.

Stop Buzzer Point of Contact

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Conclusion

Raytheon is seeking to renew its experimental license to test a Weibel radar system for purposes of testing whether it can keep optics technology tracked on objects during flight. The radar system is in use a limited amount of time, using a highly directional antenna.

For questions about this proposed operation, please contact Anne Cortez, Esq. counsel to Raytheon, 520-360-0925 or alc@conspecinternational.com.