Raytheon Missile Systems
Experimental STA Application
File Number: 1017-EX-ST-2018

Explanation of Experiment and Need for STA

Raytheon Missile Systems (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 authorization for testing such a system.

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

Need for an STA

Raytheon is seeking a temporary authorization for this testing because it is anticipating a testing timeframe of 6 months from the grant of the license. Because of the short duration of the testing, an STA is appropriate.

Description of Experiment

Raytheon will be mounting the radar system atop a platform on a trailer. The radar system will be 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 will be 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 will test at two sites in Arizona and one in New Mexico. The radar antenna will be mounted on a pedestal on a trailer, which will be used to move 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 will 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 will 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 an experimental temporary authorization to test a Weibel radar system for purposes of testing whether it can keep optics technology tracked on objects during flight.

The testing is scheduled to last only six months. The radar system will be 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 Missile Systems, 520-360-0925 or alc@conspecinternational.com.